Astro QB1.U57
No421,pt1

SEPTEMBER 1979 Number 421 -- Part 1

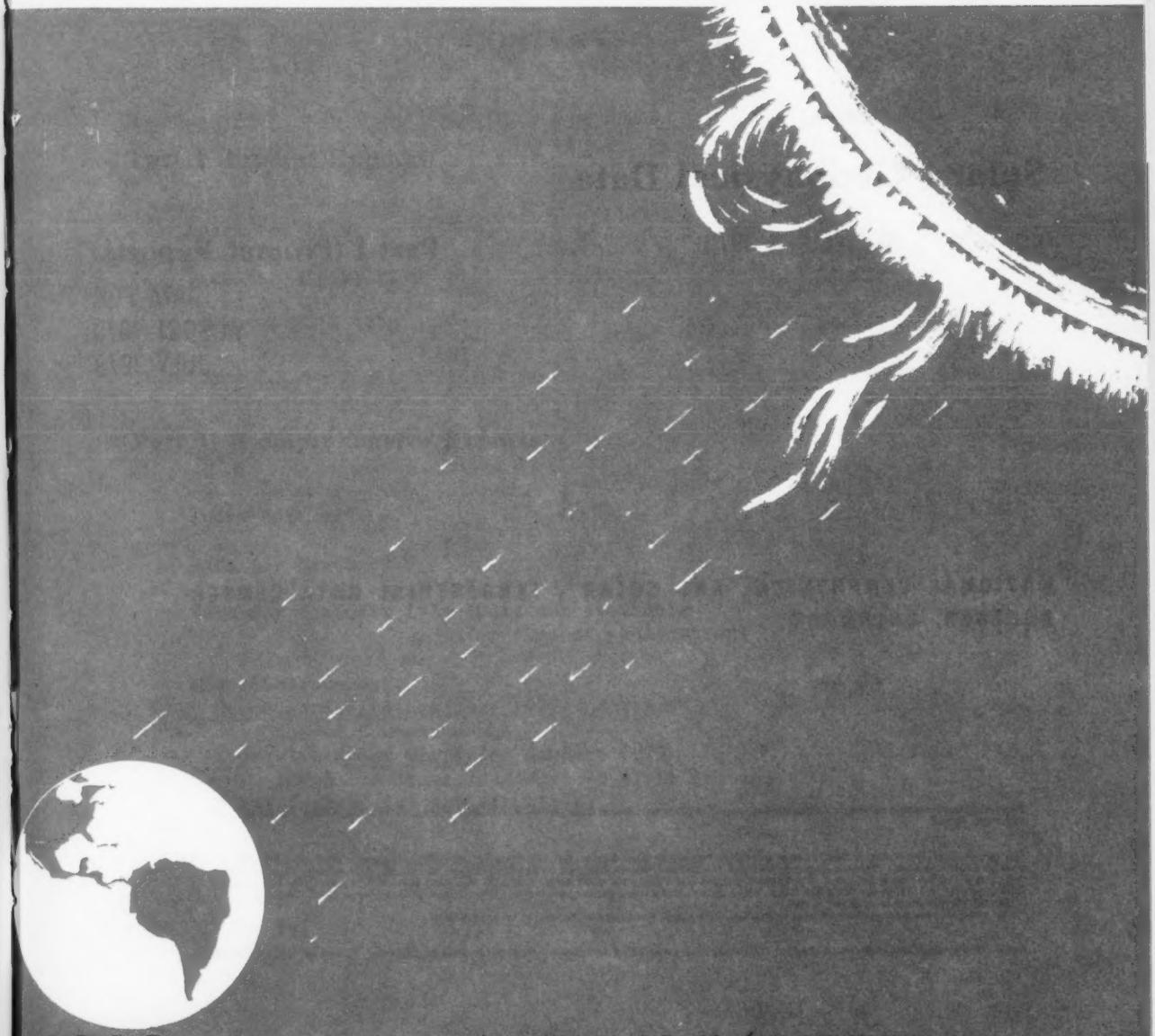
P-A STACKS

OCT 17 1979

Solar-Geophysical Data prompt reports

Data for August 1979 -- July 1979

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979



noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / BOULDER, COLORADO

U.S. DEPARTMENT OF COMMERCE
Juanita M. Kreps, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Richard A. Frank, Administrator
ENVIRONMENTAL DATA AND INFORMATION SERVICE
Thomas D. Potter, Acting Director

Solar - Geophysical Data

NO. 421 SEPTEMBER 1979

Part I (Prompt Reports)

DATA FOR
AUGUST 1979
JULY 1979

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

For obtaining bulletins on a data exchange basis, send request to: World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado 80303.

For sale through the National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO 80303. Subscription Price: $34.00 annually for both part I (Prompt Reports) and part II (Comprehensive Reports) or $18.00 annually for either part. Annual supplement containing explanation is included. For foreign mailing add $32.00 for both parts or $16.00 for either part. Single issue price is $1.50 for either part and $1.40 for the extra issue. Make checks and money orders payable to: Department of Commerce, NOAA/NGSDC.
Note: $2.00 Minimum charge per order.
To standardize referencing these reports in the open literature, the following format is recommended:

Solar-Geophysical Data, 414 Part I (or Part II), pages, December 1979 U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 421

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

CONTENTS

PAGE

Part I (Prompt Reports)

Index for 1979 2

Data for August 1979 3-42

Data for July 1979 43-167

Part II (Comprehensive Reports)

Index for 1979 2

Data for March 1979 3-40

Data for February 1979 (Data not available at time of publication)

Miscellaneous Data 41-53
Geomagnetic Indices June 1979
Sudden Commencements
Energetic Solar Particles January 1979
IMP 8 Electrons, Protons and Alpha Particles
Solar-Terrestrial Activity 1978

DETAILED COVERAGE FOR 1979 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1979 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
A.	SOLAR AND INTERPLANETARY PHENOMENA								
A.1	Sunspot Drawings	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	421A 11
A.2b	Zurich Final Sunspot Numbers Rz								
A.2c	American Relative Sunspot Numbers RA	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	421A 11
A.3a	Mt. Wilson Magnetograms	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	418B 50	418B 60	417A106	418A108	419A110	420A110	421A112	
A.3c	Kitt Peak Magnetograms	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.3d	Mean Solar Magnetic Field (Stanford)	414A 42	415A 44	416A 42	417A 36	418A 38	419A 38	420A 40	421A 40
A.3e	Stanford Magnetograms	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.4	H-alpha Filtergrams	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.5	Calcium Plage Drawings - McMath (or Catania)	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.5a	Calcium Plage (McMath) and Sunspot Regions	418B 50	418B 60	417A106	418A108	419A110	420A110	421A112	
A.5b	McMath Daily Calcium Plage Indices	415A125	416A116	417A118	418A118	419A123	420A121	421A125	
A.6	H-alpha Synoptic Charts	415A 48	416A 46	417A 40	418A 42	419A 43	420A 44	421A 44	
A.6b	Synoptic Chart and Active Regions (Paris)	419B 4	420B 4	421B 4					
A.6c	Stanford Solar Magnetic Field Synoptic Charts	415A 49	416A 47	417A 41	418A 43	419A 44	420A 46	421A 46	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts				418A 45	419A 45	420A 48	421A 48	
A.7f	Helium D3 Chromosphere (Big Bear)	---	---	416A 38	417A 33	418A 34	419A 34	420A 35	421A 37
A.7g	Helium Synoptic Maps (KPNO)	414A 34	415A 40	416A 36	417A 32	418A 33	419A 33	420A 34	421A 36
A.7h	Coronal Line Emission (Sac Peak)	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	421A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	421A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	
A.9cb	8.6 mm Radio Maps of the Sun (NOSC - La Posta)	---	---	---	---	419A 48	420A 50	421A 50	
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	---	---	---	---	419A 48	420A 50	421A 50	
A.10a	169 MHz - Interferometric Observations (Nancay)	414A 24	415A 25	416A 25	417A 21	419B 52	420B 69	420A 24	
A.10c	21 cm East-West Solar Scans (Fleurs)	414A 27	415A 28	416A 28	417A 24	418A 25	420B 70	420A 27	421A 28
A.10d	43 cm East-West Solar Scans (Fleurs)	414A 28	415A 29	416A 29	417A 25	418A 26	420B 71	420A 28	421A 29
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	414A 26	415A 27	416A 27	417A 23	418A 24	419A 26	420A 26	421A 27
A.10f	3 cm East-West Solar Scans (Toyokawa)	414A 25	415A 26	416A 26	417A 22	418A 23	419A 25	420A 25	421A 26
A.11k	Solar X-ray Radiation (SOLRAD 11)	415A129	416A120	417A119	418A122	419A126	420A124	421A129	
A.11g	Solar X-ray (SMS/GOES) (graphs)	419B 33	420B 53	421B 35					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	414A 36	---	---	---	---	---	---	---
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	414A 37	---	---	---	---	---	---	---
A.12e	Energetic Solar Particles (IMP H & J)	421B 43	420B 48	421B 30					
A.12f	Energetic Solar Particles (GMS/SEM)	---	---	---	---	---	---	---	---
A.13a	Solar Wind (Pioneers 6 & 7)	414A 36	---	---	---	---	---	---	---
A.13ab	Solar Wind (Pioneers 8 & 9)	414A 37	---	---	---	---	---	---	---
A.13d	Solar Wind from IPS Measurements	414A 39	415A 45	416A 39	417A 37	418A 35	419A 35	420A 37	
A.13e	Solar Plasma (IMP H & J)	419B 32	419B 47	421B 29					
A.13f	Solar Wind (Pioneer 12 (Venus))	414A 38	415A 39	416A 35	417A 31	418A 32	419A 32	420A 36	421A 35
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 9)	414A 37	---	---	---	---	---	---	---
A.17c	Inferred IP Magnetic Field	415A 42	415A 42	417A 34	417A 34	418A 36	419A 36	420A 38	421A 38
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	---	---	---	---	---	---
A.18	Interplanetary Electric Field (Pioneer 9)	414A 37	---	---	---	---	---	---	---
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA								
B.52	Graphs of Transmission Frequency Range	415A162	416A166	417A166	418A166	419A168	420A166	421A166	
B.53	Quality Figures Based on Frequency Ranges	415A161	416A165	417A165	418A165	419A167	420A168	421A165	
C.	FLARE-ASSOCIATED EVENTS								
C.1a	Optical Observations Flares	414A 14	414A 15	416A 14	417A 12	418A 14	419A 14	420A 14	
C.1ba	Optical Observations Flares (Standardized Data)	420B 82							
C.1d	Flare Patrol Observations	414A 23	415A 24	416A 24	417A 20	418A 23	419A 24	420A 23	
C.1d	Flare Patrol Observations	420B120							
C.1e	Flare Indices (by day)	420B119							
C.1f	Flare Indices (by Region)								
C.3	Solar Radio Waves - Outstanding Occurrences	419B 8	420B 8	421B 10					
	Solar Radio Waves - Fixed Frequencies - Selected	414A 29	415A 30	416A 30	417A 26	418A 28	419A 27	420A 29	421A 30
C.3t	41.25, 80 and 160 MHz Selected Bursts (Culgoora)	415A147							
C.4a	Solar Radio Spectral Obs. (Fort Davis)	417B 60	417B 62	417A138	420B 72	420B 75	420A139		
C.4d	Solar Radio Spectral Obs. (Culgoora)	415A129	416A134	417A138	418A137	419A142	420A139	421A145	
C.4e	Solar Radio Spectral Obs. (Weissenau)	415A129	416A134	417A138	418A137	419A142	420A139		
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	415A129	416A134	417A138	418A137	419A142	420A139	421A145	
C.4h	Solar Radio Spectral Obs. (Duringeloo)	415A129	416A134	417A138	418A137	419A142	---	421A145	
C.4i	Solar Radio Spectral Obs. (Durnton)	415A129	416A134	417A138	418A137	419A142			
C.4j	Solar Radio Spectral Obs. (Manila)	415A129	416A134	417A138	418A137	419A142	420A139	421A145	
C.5e	Solar X-ray (SMS/GOES) (graphs)	419B 33	420B 53	421B 35					
C.6	Sudden Ionospheric Disturbances	415A126	416A117	417A119	418A119	419A124	420A122	421A126	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA								
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	415A155	416A158	417A158	418A158	419A160	420A160	421A159	
D.1ba	27-day Chart of Kp Indices	415A157	416A160	417A160	418A160	419A162	420A162	421A161	
D.1c	27-day Chart of C9								
D.1d	Principal Magnetic Storms	415A158	416A163	417A163	418A163	419A165	420A165	421A164	
D.1e	Reduced Magnetograms								
D.1f	Sudden Commencement and Solar Flare Effects	415A160	416A164	418B 76	419B 63	419A166	421B 42		
D.1g	Equatorial Indices Dst	416B 90	416A162	417A162	418A162	419A164	420A164	421A163	
D.1h	Geomagnetic Substorm Log (Boulder)	414A 43	415A 46	416A 43	417A 38	418A 39	419A 39	420A 41	421A 41
F.	COSMIC RAYS								
F.1a	Cosmic Ray Neutron Counts (Deep River)	415A154	416A151	417A151	418A151	419A153	420A155	421A158	
F.1b	Cosmic Ray Neutron Counts (Climax)	416B 88	416A151	417A151	418A151	419A153	420A155	421A158	
F.1e	Cosmic Ray Neutron Counts (Alert)	415A154	416A151	417A151	418A151	420B 78	420A155	421A158	
F.1f	Cosmic Ray Neutron Counts (Calgary)								
F.1h	Cosmic Ray Neutron Counts (Thule)	419B 62	419B 62	419B 62	419B 62	419A153	420A155	421A158	
F.1i	Cosmic Ray Neutron Counts (Kiel)	415A154	416A151	417A151	418A151	419A153	420A155	421A158	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	415A154	416A151	417A151	418A151	419A153	420A155	421A158	
F.1k	Cosmic Ray Neutron Counts (Kula)								
F.1l	Cosmic Ray Neutron Counts (Huancayo)		417B 67	418B 72	419B 58	420B 79	420A155	421A158	
H.	MISCELLANEOUS								
H.60	IUWDS Alert Decisions	414A 4	415A 5	416A 4	417A 4	418A 5	419A 5	420A 5	421A 5
H.62	Abbreviated Calendar Record	420B 58							

Notes:

"415A 52" listed under 1979 Jan means that the sunspot drawings for January 1979 were contained in *Solar-Geophysical Data* Number 415 - Part I, beginning on page 52.

A = Part I, B = Part II.

---- = no data available.
blank = data not yet received.

SGD 421 Part I (Prompt)

AUGUST 1979 DATA

Contents

	Page
Alert Periods	
IUWDS Alert Periods (Advance and Worldwide)	5-9
Daily Solar Indices	
Relative Sunspot Numbers, R_Z, and Daily Solar Flux at 2800 MHz (12 Month Tables)	10
Daily Solar Indices (Sunspot Numbers and Solar Fluxes)	11
Graph of Observed and Predicted Sunspot Numbers	12
Smoothed Observed and Predicted Sunspot Numbers	13
Solar Flares	
Hα Solar Flares	14-24
Intervals of No Flare Patrol Observation	25
Solar Radio Emission	
169 MHz Solar Interferometric Chart - Nancay (Data not available at time of publication)	
3 cm East-West Solar Scans - Toyokawa	26
10.7 cm East-West Solar Scans - ARO, Ottawa	27
21 cm East-West Solar Scans - Fleurs	28
43 cm East-West Solar Scans - Fleurs	29
Selected Fixed Frequency Events	30-33
Selected Solar Noise Bursts	34
Spacecraft Observations	
Pioneer XII (Pioneer Venus)	35
Coronal Holes	
Helium 1083Å Synoptic Map	36
Helium D3 Chromosphere	37
Solar Wind Measurements	
Interplanetary Scintillations (Data not available at time of publication)	
Inferred Interplanetary Magnetic Field Polarities	38
Mean Solar Magnetic Field	
Stanford Mean Solar Magnetic Field (Map)	39
Stanford Mean Solar Magnetic Field (Table)	40
Geomagnetic	
Boulder Geomagnetic Substorm Log	41
Solar Proton Event (Provisional)	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1979

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS).

01 AUGUST 1979 BOULDER SOFLARE M1/NO OPTICAL 01/0116Z.
TENFLARE 160 FLUX UNITS 01/1116Z DURATION 3 MINUTES.
13 AUGUST 1979 BOULDER SOFLARE M2/NO OPTICAL (GREECE SAW AN ASR AT SE 42).
TENFLARE 2200 FLUX UNITS 13/1013Z DURATION 138 MINUTES.
14 AUGUST 1979 BOULDER SOFLARE M3/1N S22E73 14/1243Z DURATION 101 MINUTES.
TENFLARE 5900 FLUX UNITS 14/1243Z DURATION 74 MINUTES.
SOLFLARE S17W42 14/1542Z DURATION 11 MINUTES.
TENFLARE 620 FLUX UNITS 14/1544Z DURATION 13 MINUTES.
18 AUGUST 1979 BOULDER SOFLARE X6/1B N10E90 18/1403Z DURATION 20 MINUTES.
TENFLARE 700 FLUX UNITS 18/1345Z DURATION 80 MINUTES.
SOFLARE X1/SE LIMB 18/1343Z DURATION 18 MINUTES.
19 AUGUST 1979 BOULDER PROTON EVENT BEGAN AT 19/0850Z 62 PROTONS/CM²/S/SR AT GREATER THAN 10 MEV AT 19/2200Z.
20 AUGUST 1979 BOULDER SOFLARE X5/2B N05E76 20/0903Z DURATION 30 MINUTES.
TENFLARE 660 FLUX UNITS 20/0903Z DURATION 32 MINUTES.
26 AUGUST 1979 BOULDER SOFLARE X1/2B N05W11 26/1700Z DURATION 75 MINUTES.
TENFLARE 640 FLUX UNITS 26/1600Z.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
213	01	31	197	148	003	N14W47	0	0	0		01	N14W47	Q	SOLNIL MAGQUIET
						S16W83	1	0	0			S16W83	Q	
						S15W60	0	0	0			S15W60	Q	
						N16W22	0	0	0			N16W22	Q	
						S18W12	0	0	0			S18W12	Q	
						S22E07	0	0	0			S22E07	Q	
						N05E12	0	0	0			N05E12	Q	
						S12E13	0	0	0			S12E13	Q	
						N12E37	0	0	0			N12E37	Q	
						N22W10	0	0	0			N22W10	Q	
						N17E08	0	0	0			N17E08	Q	
214	02	01	176	145	011	N13W60	0	0	0		02	N13W60	Q	SOLQUIET MAGQUIET
						S16W75	0	0	0			S16W75	Q	
						N15W36	1	0	0			N15W36	Q	
						S18W23	0	0	0			S18W23	Q	
						S22W06	3	0	0			S22W06	E	
						N04W00	0	0	0			N04W00	Q	
						S12W01	7	1	0			S12W01	E	
						N12W25	0	0	0			N12W25	Q	
						N16W00	0	0	0			N16W00	Q	
						N18E13	0	0	0			N18E13	Q	
						S17E41	0	0	0			S17E41	Q	
						S10E69	0	0	0			S10E69	Q	
215	03	02	149	142	014	N14W75	0	0	0		03	N14W75	Q	SOLQUIET MAGQUIET
						N16W50	2	0	0			N16W50	E	
						S22W19	1	0	0			S22W19	E	
						N04W14	0	0	0			N04W14	Q	
						S12W16	1	0	0			S12W16	E	
						N12E11	0	0	0			N12E11	Q	
						S09E56	1	0	0			S09E56	E	
						N18E41	0	0	0			N18E41	Q	
						N23E66	1	0	0			N23E66	E	
						N26W69	0	0	0			N26W69	Q	
216	04	03	161	141	012	N18W65	0	0	0		04	N18W65	E	SOLQUIET MAGQUIET
						S22W32	1	0	0			S22W32	Q	
						N04W27	0	0	0			N04W27	Q	
						S12W29	0	0	0			S12W29	Q	
						N12W01	0	0	0			N12W01	Q	
						S10E43	0	0	0			S10E43	Q	
						N17E21	0	0	0			N17E21	Q	
						N26E49	1	0	0			N26E49	Q	
						N27W82	3	0	0			N27W82	Q	
						N06W16	0	0	0			N06W16	Q	
						N12E73	0	0	0			N12E73	Q	
						N13W58	0	0	0			N13W58	Q	
217	05	04	116	138	014	N18W77	0	0	0		05	N18W77	E	SOLQUIET MAGQUIET
						S21W45	0	0	0			S21W45	Q	
						S12W44	2	0	0			S12W44	Q	
						N12W13	0	0	0			N12W13	Q	
						N26E37	1	0	0			N26E37	Q	
						N06W29	1	0	0			N06W29	Q	
						N11E61	0	0	0			N11E61	Q	
						N13W69	0	0	0			N13W69	Q	
218	06	05	109	138	012	N26E25	0	0	0		06	N26E25	Q	SOLQUIET MAGQUIET
						N06W42	0	0	0			N06W42	Q	
						N12E47	0	0	0			N12E47	Q	
						S21W59	0	0	0			S21W59	Q	
						S12W57	0	0	0			S12W57	Q	
						N12W27	0	0	0			N12W27	Q	
						S26E65	0	0	0			S26E65	Q	
						S14E69	0	0	0			S14E69	Q	
219	07	06	161	145	018	S21W71	0	0	0		07	S21W71	Q	SOLQUIET MAGQUIET
						N12W40	0	0	0			N12W40	Q	
						N26E12	0	0	0			N26E12	Q	
						N06W56	0	0	0			N06W56	Q	
						N11E34	0	0	0			N11E34	Q	
						S27E52	0	0	0			S27E52	Q	
						S14E55	0	0	0			S14E55	Q	
						N25W40	0	0	0			N25W40	Q	
						N25E79	0	0	0			N25E79	Q	
						S16W35	0	0	0			S16W35	Q	
						N12W30	0	0	0			N12W30	Q	
220	08	17	162	146	010	S21W84	0	0	0		08	S21W84	Q	SOLALERT 08/12 MAGQUIET
						N12W53	0	0	0			N12W53	Q	
						N26W01	0	0	0			N26W01	Q	
						N06W69	1	0	0			N06W69	E	
						N12E20	0	0	0			N12E20	Q	
						S27E40	0	0	0			S27E40	Q	
						S14E42	0	0	0			S14E42	Q	
						N25E67	0	0	0			N25E67	Q	
						S16W48	0	0	0			S16W48	Q	
						N14E79	3	1	0			N14E79	A	
						S12E29	0	0	0			S12E29	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
221	09	08	190	148	006	N12W70	0	0	0		09	N12W70	Q	SOLALERT 09/12 MAGQUIET
						N26W17	0	0	0			N26W17	Q	
						N06W84	0	0	0			N06W84	Q	
						N12E14	0	0	0			N12E14	Q	
						S27E27	0	0	0			S27E27	Q	
						S14E32	0	0	0			S14E32	E	
						N27E53	0	0	0			N27E53	Q	
						S16W62	1	0	0			S16W62	Q	
						N15E65	2	0	0			N15E65	A	
						S13E15	0	0	0			S13E15	Q	
						S25E08	0	0	0			S25E08	Q	
						S24E67	0	0	0			S24E67	Q	
						N18W07	0	0	0			N18W07	Q	
						N17E52	0	0	0			N17E52	Q	
222	10	09	143	154	007	N11W83	0	0	0		10	N11W83	Q	SOLALERT MAGQUIET 10/11
						S28E14	1	0	0			S28E14	E	
						S15E19	0	0	0			S15E19	Q	
						N26E40	1	0	0			N26E40	E	
						S17W74	2	0	0			S17W74	E	
						N14E53	5	0	0			N14E53	E	
						S25E55	0	0	0			S25E55	Q	
						N15E40	0	0	0			N15E40	Q	
						N16E13	0	0	0			N16E13	Q	
223	11	10	128	151	006	S27W00	0	0	0		11	S27W00	Q	SOLALERT 11/13 MAGQUIET
						S15E05	0	0	0			S15E05	Q	
						N26E29	0	0	0			N26E29	E	
						S16W87	0	0	0			S16W87	Q	
						N14E40	3	1	0			N14E40	A	
						S25E42	0	0	0			S25E42	Q	
						N16E26	0	0	0			N16E26	Q	
						N16W01	0	0	0			N16W01	Q	
224	12	11	143	150	006	S26W10	3	0	0		12	S26W10	E	SOLALERT 12/14 MAGQUIET
						S15W09	0	0	0			S15W09	Q	
						N25E15	0	0	0			N25E15	E	
						N14E25	7	0	0			N14E25	A	
						S26E28	0	0	0			S26E28	Q	
						N22E13	0	0	0			N22E13	Q	
						N32E25	0	0	0			N32E25	Q	
						S14E44	0	0	0			S14E44	Q	
						N18E75	0	0	0			N18E75	Q	
225	13	12	141	141	017	S27W24	0	0	0		13	S27W24	Q	SOLALERT 13/xx MAGQUIET
						S16W22	0	0	0			S16W22	Q	
						N25E03	0	0	0			N25E03	Q	
						N14E13	4	0	0			N14E13	E	
						N24W01	0	0	0			N24W01	Q	
						N36E12	0	0	0			N36E12	Q	
						S14E34	0	0	0			S14E34	Q	
						N18E65	0	0	0			N18E65	Q	
						S21E64	0	0	0			S21E64	Q	
226	14	13	129	152	046	S16W35	0	0	0	A TENFLARE WAS RE-	14	S16W35	E	SOLALERT 14/16 MAGALERT 14
						N27W10	0	0	0	PORTED BY MOSCOW,		N27W10	E	
						N15W01	3	0	0	ATHENS, AND SAGA-		N15W01	A	
						N18E54	0	0	0	MORE HILL WITH		N18E54	Q	
						S21E51	0	0	0	4100 FLUX UNITS		S21E51	Q	
						N17W15	0	0	0	MAXIMUM AT 1026Z,		N17W15	Q	
						S05E59	0	0	0	NO OPTICAL REPORTS		S05E59	Q	
227	15	14	186	173	011	S17W47	2	1	0	THREE TENFLARES	15	S17W47	Q	SOLALERT 15/17 MAGNIL
						N28W19	0	0	0	WERE REPORTED		N28W19	Q	
						N14W13	1	0	0	13/1014Z 2360 FLUX		N14W13	E	
						N18E41	0	0	0	UNITS, 14/1243Z		N18E41	Q	
						S22E48	1	0	0	5900 FLUX UNITS,		S22E48	A	
						S06E46	0	0	0	14/1544Z 620 FLUX		S06E46	Q	
						S25E65	2	1	0	UNITS.		S25E65	A	
228	16	15	180	163	006	S16W61	4	0	0		16	S16W61	Q	SOLALERT 16/18 MAGQUIET
						N29W32	1	0	0			N29W32	Q	
						N14W28	2	0	0			N14W28	E	
						N18E27	0	0	0			N18E27	Q	
						S23E35	2	1	0			S23E35	E	
						S07E31	0	0	0			S07E31	Q	
						S26E52	6	0	0			S26E52	A	
						N19E15	0	0	0			N19E15	Q	
						S14E65	0	0	0			S14E65	Q	
						N18E73	0	0	0			N18E73	Q	
229	17	16	138	160	007	N14W41	0	0	0		17	N14W41	E	SOLALERT 17/19 MAGQUIET
						N18E12	1	0	0			N18E12	Q	
						S23E22	0	0	0			S23E22	E	
						S27E39	7	1	0			S27E39	A	
						S14E50	0	0	0			S14E50	Q	
						N17E59	0	0	0			N17E59	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions Location Lat-Long	No. of Flares Total	M	X	Outstanding events	Forecasts Date	Location Lat-Long	Desc*	Alert Situations
230	18	17	138	162	005	N14W53	0	0	0		18	N14W53	E	SOLALERT 18/20 MAGQUIET
						N17W01	0	0	0			N17W01	Q	
						S23E06	0	0	0			S23E06	Q	
						S27E27	1	0	0			S27E27	A	
						S12E36	0	0	0			S12E36	Q	
						N17E45	0	0	0			N17E45	Q	
						N14W41	0	0	0			N14W41	Q	
231	19	18	138	176	007	N14W66	0	0	0	SOFLARE X1/SE LIMB		N14W66	E	SOLALERT 19/xx MAGQUIET
						N18W14	0	0	0	18/1343Z DURATION 18		N18W14	Q	
						S23W07	0	0	0	MINUTES TENFLARE 700		S23W07	Q	
						S25E14	4	0	0	FLUX UNITS 18/1345Z		S25E14	A	
						N18E32	0	0	0	DURATION 80 MINUTES.		N18E32	Q	
						N12W54	0	0	0			N12W54	Q	
						N27E08	0	0	0			N27E08	Q	
232	20	19	310	182	034	N12W77	1	0	0	PRESTO PROTON EVENT	19	N12W77	Q	SOLALERT 20/22 MAGALERT 20/xx
						N16W26	0	0	0	BEGAN AT 19/0850Z		N16W26	Q	
						S14W17	0	0	0	62 PROTONS/CM^2/S/SR		S14W17	Q	
						S26E00	8	0	0	AT GREATER THAN		S26E00	E	
						S13E10	0	0	0	10 MEV AT 2200Z		S13E10	Q	
						N17E18	0	0	0	19 AUGUST.		N17E18	Q	
						N13W68	3	0	0			N13W68	Q	
						N26W05	0	0	0			N26W05	Q	
						S09W27	0	0	0			S09W27	Q	
						N12W16	0	0	0			N12W16	Q	
						N08E34	0	0	0			N08E34	Q	
						S16E36	3	0	0			S16E36	Q	
						S14E51	0	0	0			S14E51	Q	
						S19E59	1	0	0			S19E59	Q	
						N24E62	1	0	0			N24E62	Q	
						S32E76	0	0	0			S32E76	Q	
						N05E79	1	0	0			N05E79	A	
						N20W48	0	0	0			N20W48	Q	
						N20E38	0	0	0			N20E38	Q	
233	21	20	259	203	027	N16W39	0	0	0	PRESTO SOFLARE	20	N16W39	Q	SOLALERT 21/23 MAGALERT MINOR 21/23
						S25W29	0	0	0	X5/2B N05E76 AT		S25W29	Q	
						S27W11	4	0	0	20/0903Z DURATION OF		S27W11	E	
						S12W05	0	0	0	30 MINUTES. TENFLARE		S12W05	Q	
						N17E05	0	0	0	OF 660 FLUX UNITS AT		N17E05	Q	
						N13W82	2	0	0	20/0903Z WITH DURA-		N13W82	Q	
						N26W19	0	0	0	TION of 32 MINUTES		N26W19	Q	
						N08E20	1	0	0	POLCAP ABSORPTION		N08E20	Q	
						S15E23	0	0	0	BEGAN AT 20/0015Z		S15E23	Q	
						S13E35	2	0	0	WITH 3.5 dB.		S13E35	Q	
						S18E46	1	0	0			S18E46	Q	
						S30E63	2	0	0			S30E63	Q	
						N04E69	10	1	1			N04E69	A	
						S14E08	3	0	0			S14E08	E	
						N23E06	0	0	0			N23E06	Q	
234	22	21	335	210	025	N17W52	3	0	0		21	N17W52	Q	SOLALERT 22/24 MAGALERT MINOR 22/24
						S24W43	0	0	0			S24W43	Q	
						S27W26	3	0	0			S27W26	E	
						S12W19	0	0	0			S12W19	Q	
						N18W08	0	0	0			N18W08	Q	
						N26W33	0	0	0			N26W33	Q	
						N08E07	0	0	0			N08E07	Q	
						S16E10	0	0	0			S16E10	Q	
						S12E25	0	0	0			S12E25	Q	
						S20E34	0	0	0			S20E34	Q	
						S32E52	2	0	0			S32E52	Q	
						N05E54	5	1	0			N05E54	A	
						S16W05	4	0	0			S16W05	A	
						N25W19	0	0	0			N25W19	Q	
						S15W41	0	0	0			S15W41	Q	
						N17W18	0	0	0			N17W18	Q	
						N23W20	0	0	0			N23W20	Q	
235	23	22	262	218	016	N17W66	0	0	0	PCA ENDED 22/2300Z.	22	N17W66	Q	SOLALERT 23/25
						S23W57	1	0	0			S23W57	Q	MAGALERT MINOR 23
						S27W38	2	0	0			S27W38	E	
						S11W33	1	0	0			S11W33	Q	
						N16W20	0	0	0			N16W20	Q	
						N25W43	0	0	0			N25W43	Q	
						S15W05	0	0	0			S15W05	Q	
						S14E11	2	0	0			S14E11	Q	
						S21E20	0	0	0			S21E20	Q	
						S31E39	1	0	0			S31E39	E	
						N05E40	8	0	0			N05E40	A	
						S16W18	1	0	0			S16W18	Q	
						S14W51	0	0	0			S14W51	Q	
						N27W31	0	0	0			N27W31	Q	
						S21E68	0	0	0			S21E68	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Flares: Total	Flares: M	Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
236	24	23	261	214	004	N17W75	0	0	0		23	N17W75	Q	MAJOR FLARE ALERT 24/xx
						S24W70	0	0	0			S24W70	Q	MAGNIL
						S26W51	1	0	0			S26W51	E	
						S13W43	0	0	0			S13W43	Q	
						N17W33	0	0	0			N17W33	Q	
						N26W56	0	0	0			N26W56	Q	
						S13W02	1	0	0			S13W02	E	
						S20E07	0	0	0			S20E07	Q	
						S32E26	0	0	0			S32E26	E	
						N05E28	6	1	0			N05E28	P	
						S15W31	0	0	0			S15W31	Q	
						S15W65	0	0	0			S15W65	Q	
						N27W44	0	0	0			N27W44	Q	
						S22E55	0	0	0			S22E55	Q	
						N17E37	0	0	0			N17E37	Q	
						S22E70	0	0	0			S22E70	Q	
237	25	24	313	220	010	S24W83	0	0	0		24	S24W83	Q	MAJOR FLARE ALERT 25/xx
						S26W64	1	0	0			S26W64	Q	MAGALERT RECURRENCE 26/27
						N16W46	0	0	0			N16W46	Q	
						N25W74	0	0	0			N25W74	Q	
						S13W15	2	0	0			S13W15	E	
						S19W08	0	0	0			S19W08	Q	
						S32E14	4	0	0			S32E14	E	
						N05E15	6	0	0			N05E15	P	
						S15W46	3	0	0			S15W46	E	
						S25W85	0	0	0			S25W85	Q	
						N28W56	0	0	0			N28W56	Q	
						S21E43	0	0	0			S21E43	Q	
						N18E23	6	0	0			N18E23	A	
						S22E55	0	0	0			S22E55	Q	
						S10E16	0	0	0			S10E16	Q	
						S28E74	0	0	0			S28E74	Q	
						N13W13	0	0	0			N13W13	Q	
238	26	25	256	232	016	S26W77	1	0	0		25	S26W77	Q	SOLALERT 26/28 MAGALERT 26/28
						S12W72	3	0	0			S12W72	Q	
						N24W87	2	0	0			N24W87	Q	
						S13W29	0	0	0			S13W29	Q	
						S19W21	0	0	0			S19W21	Q	
						S32E02	5	0	0			S32E02	E	
						N05E02	6	1	0			N05E02	P	
						S15W59	3	0	0			S15W59	Q	
						S21E29	2	0	0			S21E29	Q	
						N18E10	3	0	0			N18E10	A	
						S22E41	0	0	0			S22E41	Q	
						S10E03	0	0	0			S10E03	Q	
						S18E60	0	0	0			S18E60	Q	
239	27	26	236	223	014	S14W43	0	0	0		26	S14W43	Q	SOLALERT 27/29 MAGALERT 27/28
						S30W11	0	0	0			S30W11	Q	
						N05W11	11	0	1			N05W11	P	
						N26W82	0	0	0			N26W82	Q	
						S21E17	1	0	0			S21E17	E	
						N18W00	2	0	0			N18W00	E	
						S21E31	0	0	0			S21E31	Q	
						S11W01	0	0	0			S11W01	Q	
						S27E47	0	0	0			S27E47	Q	
						N17E75	1	0	0			N17E75	Q	
						N28W26	0	0	0			N28W26	Q	
240	28	27	277	208	015	S13W57	0	0	0		27	S13W57	Q	SOLALERT 28/xx MAGALERT 28/xx
						S32W24	1	0	0			S32W24	E	
						N06W26	4	0	0			N06W26	A	
						S21E04	1	0	0			S21E04	E	
						N18W15	0	0	0			N18W15	Q	
						S21E15	0	0	0			S21E15	Q	
						S10W24	0	0	0			S10W24	Q	
						S27E34	0	0	0			S27E34	Q	
						N13W48	0	0	0			N13W48	Q	
						N19E66	3	0	0			N19E66	E	
						S23E61	0	0	0			S23E61	Q	
241	29	28	221	210	015	S13W69	0	0	0		28	S13W69	Q	SOLALERT 29/31
						S32W36	2	0	0			S32W36	Q	MAGALERT MINOR 29/30
						N06W38	11	0	0			N06W38	A	
						N18W28	1	1	0			N18W28	E	
						S21E03	0	0	0			S21E03	Q	
						S12W34	0	0	0			S12W34	Q	
						S27E22	2	0	0			S27E22	Q	
						N18E54	6	0	0			N18E54	E	
						N24E49	2	0	0			N24E49	Q	
						N18W00	0	0	0			N18W00	Q	
						N13E71	0	0	0			N13E71	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
242	30	29	169	194	040	S32W48	1	0	0	A MINOR GEOMAGNETIC	29	S32W48	E	SOLALERT 30/31
						N05W50	3	0	0	STORM STARTED WITH		N05W50	A	MAGALERT 30/31
						N18W40	1	0	0	SC AT 29/0459Z.		N18W40	Q	
						S21W10	0	0	0			S21W10	Q	
						S27E08	1	0	0			S27E08	Q	
						N18E43	1	0	0			N18E43	E	
						N24E35	1	0	0			N24E35	Q	
						N18W14	0	0	0			N18W14	Q	
						N12E56	1	0	0			N12E56	Q	
243	31	30	169	184	015	S33W61	0	0	0		31	S33W61	Q	SOLALERT 31 MAGNIL
						N04W64	1	0	0			N04W64	E	
						N17W54	1	0	0			N17W54	Q	
						N23W21	1	0	0			N23W21	Q	
						S28W05	0	0	0			S28W05	Q	
						N19E29	0	0	0			N19E29	Q	
						N24E22	0	0	0			N24E22	Q	
						N16W29	0	0	0			N16W29	Q	
						N21E64	6	0	0			N21E64	E	
						N13E66	0	0	0			N13E66	Q	
244	01	31	213	177	013	N05W78	4	0	0		31	N05W78	A	SOLALERT 01/xx MAGQUIET
						S32W74	0	0	0			S32W74	Q	
						N26W74	0	0	0			N26W74	Q	
						N18W67	1	0	0			N18W67	Q	
						N17W41	1	0	0			N17W41	Q	
						S23W34	0	0	0			S23W34	Q	
						S28W13	0	0	0			S28W13	Q	
						N24W07	0	0	0			N24W07	Q	
						N12E12	0	0	0			N12E12	Q	
						N19E16	0	0	0			N19E16	E	
						N21E52	6	0	0			N21E52	E	
						N13E53	3	0	0			N13E53	E	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1978 FINAL				1979 PROVISIONAL							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	136	96	139	110	158	116	116	131	108	121	158	115
2	167	112	122	110	158	127	138	134	106	152	168	96
3	159	105	125	117	151	148	141	135	103	161	205	121
4	162	100	129	115	157	123	142	138	112	178	219	110
5	177	73	121	134	146	134	135	109	113	207	232	93
6	177	74	138	122	173	146	144	91	122	226	249	104
7	147	95	112	138	163	144	146	77	148	222	223	110
8	120	103	116	148	172	142	143	69	165	220	219	132
9	129	121	108	152	166	139	146	61	162	231	191	115
10	99	149	120	144	163	137	140	87	145	205	163	92
11	84	158	118	170	157	137	156	109	149	186	155	84
12	72	158	99	188	159	138	170	107	158	199	145	87
13	92	156	90	165	159	152	169	113	163	172	142	91
14	113	170	78	150	162	163	159	116	203	149	127	119
15	133	166	59	140	178	161	155	117	207	127	121	135
16	143	163	77	143	164	159	130	119	187	103	114	122
17	136	143	92	146	164	160	142	107	184	122	109	138
18	156	135	93	132	146	162	142	98	144	126	109	157
19	159	154	85	95	138	166	138	79	109	110	135	176
20	163	151	76	84*	177	169	120	68	107	111	158	187
21	171	144	68	68	181	171	134	68	114	124	151	216
22	148	125	77	63	178	155	140	79	121	108	152	216
23	156	116	55	59	148	127	139	79	117	96	154	206
24	163	104	61	65	209	99	118	80	119	90	143	203
25	168	96	85	81	209	88	114	85	124	120	144	201
26	152	102	101	93	173	106	114	113	123	132	142	182
27	142	115	118	110	162	97	117	125	114	112	146	169
28	126	117	118	122	157	95	114	132	110	128	132	174
29	122	137	111	135	153		110	132	113	124	148	158
30	94	129	103	159	149		127	120	96	154	150	150
31		111		177	130		147		120		144	168
MEAN	138.2	125.1	97.9	122.7	165.8	138.0	137.0	102.8	134.6	150.5	159.6	143.5

1978 yearly mean = 92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1978				1979							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	159.8	139.0	152.8	166.6	194.1*	185.8	168.5	202.6*	180.4	189.5	186.3	149.1
2	171.7*	137.8	159.6	167.6	200.1	185.6	170.7	203.4	173.2	206.8*	200.9*	143.9*
3	167.0	131.7	169.9	164.2	203.5*	187.4*	173.3	194.2	164.3	216.1*	213.4	145.1
4	174.4*	132.8*	177.4	165.3	192.7*	187.7	181.4	183.5	176.0	228.6*	215.1	141.7
5	179.4	134.7*	181.2	169.5	194.9	197.4	180.1*	179.3	169.6	230.2	204.5	141.6
6	181.1	137.4	172.2*	164.5	198.9	206.5	182.4	176.3	171.1*	238.1	211.3	149.5
7	177.5	141.6	174.6	178.5*	196.2	203.4	183.1*	166.7	178.0	238.1	207.2	151.1
8	167.1	150.1	168.0*	189.9	200.1	207.2*	179.9	169.0*	182.4*	242.7	206.7	152.7
9	157.6*	155.8	164.9*	189.6	192.6	198.7	181.4	169.6	181.3	247.4*	197.9*	157.3
10	149.8	162.3	166.3	204.7	186.2	198.4*	180.6	173.0	174.7	239.9	185.9	152.1*
11	141.5	171.6*	163.7	210.5	179.5	202.2*	181.7*	178.0*	178.6	229.6	178.6	154.4
12	138.5	177.2	150.4	217.3	174.5	195.4	188.7	174.5	184.2	208.3	170.1	144.8
13	138.0	178.5	145.3	210.6*	193.9	195.4	186.3	175.8	185.6	193.7	161.4	155.8
14	143.5*	180.1	136.3	197.0	200.0*	204.2*	189.4	170.9	182.0	185.7	154.7*	158.2*
15	152.6	162.0	133.8	192.7	192.1*	205.0*	181.3	168.1	181.9	176.0	151.1	167.6
16	161.5	176.7*	123.8	180.5	189.9*	209.2	183.5*	171.7	174.4	167.5	143.6	164.8
17	161.8	171.5	128.1	177.7	175.7	213.1	177.7	168.0	167.7	158.1	142.7	165.8
18	169.3*	169.4	127.4	161.5	177.6	237.7	188.6*	158.7	171.3*	152.6	141.2	180.0
19	168.8*	170.4	128.9	152.9	197.4	237.8	177.6	159.4	161.5	146.2	143.6	186.4
20	168.6	171.0	134.9	138.1	197.2	230.1*	184.1	156.1	155.6	151.5	146.8	204.2*
21	172.5	166.9*	126.0	132.1*	210.3	225.1	182.2	161.5	155.7	148.9	143.7*	207.6*
22	171.5*	161.4	127.1	132.7	226.9	223.3	181.1	159.7*	156.5*	141.1	155.7	223.2
23	165.5*	161.4	121.9	133.4	225.1	196.3	188.5	162.3	156.0	139.0	163.1*	218.6
24	158.9	156.9	123.5	135.2*	208.5	182.8	189.3	161.9	153.2*	141.2	166.5	225.2
25	157.2	156.1	124.7*	138.0	206.1	167.5	188.2	172.5	153.3*	147.8	164.5	229.3*
26	148.5	154.4	132.7	144.2	192.9	166.8	200.2	182.0	149.1	153.7	165.6	223.3
27	146.2*	150.7	144.4*	148.7*	205.4	162.7	187.9	195.1*	149.4	158.5	159.1*	212.8
28	147.8	148.4*	154.1	164.1	209.6	163.6	186.6	192.1*	149.2	159.1	156.1	214.2
29	148.1	149.8	162.2	166.2	209.3		191.4	185.7	150.2	166.9	156.7	197.6
30	142.6	146.5	167.8	161.7	194.1*		186.6	185.2*	150.4	176.7*	160.3	187.8
31		144.0		195.1	193.7		201.4*		174.9		152.4	179.9
MEAN	159.6	157.1	148.2	170.0	196.5	199.1	184.0	175.0	168.9	186.0	171.4	177.0

* adjusted for burst
A = interpolated data point

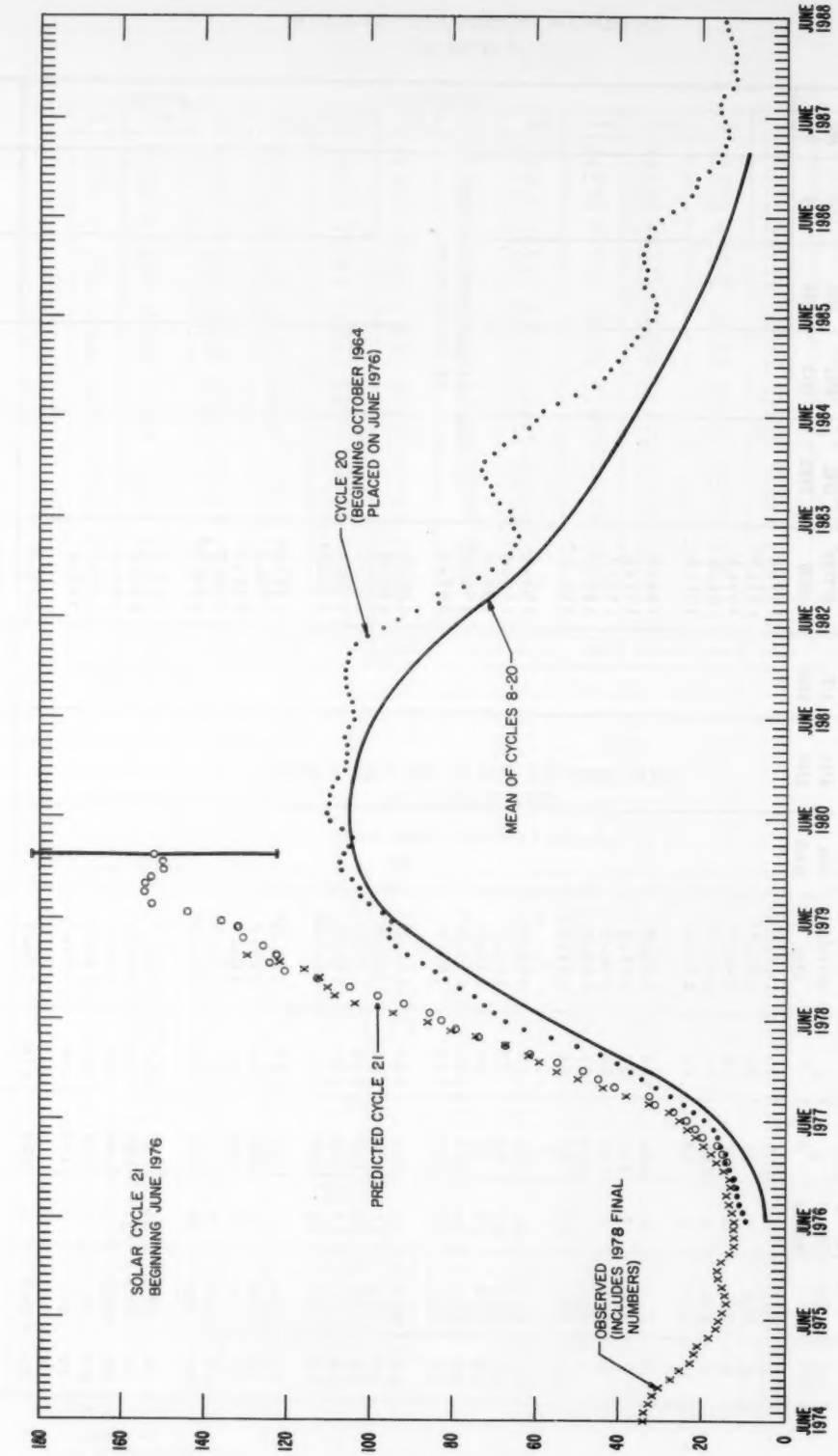
DAILY SOLAR INDICES

AUGUST 1979

AUG 1979	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.							
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	213	1	115	95	144.8				149.1					
2	214	2	96	84	139.7*				143.9*					
3	215	3	121	90	140.9				145.1					
4	216	4	110	79	137.7				141.7					
5	217	5	93	79	137.6				141.6					
6	218	6	104	100	145.3				149.5					
7	219	7	110	99	147.0				151.1					
8	220	8	132	104	148.5				152.7					
9	221	9	115	97	153.0				157.3					
10	222	10	92	68	148.1*				152.1*					
11	223	11	84	79	150.3				154.4					
12	224	12	87	73	141.0				144.8					
13	225	13	91	64	151.9				155.8					
14	226	14	119	91	154.2*				158.2*					
15	227	15	135	109	163.4				167.6					
16	228	16	122	103	160.8				164.8					
17	229	17	138	104	161.8				165.8					
18	230	18	157	114	175.6				180.0					
19	231	19	176	164	182.0				186.4					
20	232	20	187	172	199.4*				204.2*					
21	233	21	218	203	202.9*				207.6*					
22	234	22	216	204	218.2				223.2					
23	235	23	206	190	213.9				218.6					
24	236	24	203	187	220.4				225.2					
25	237	25	201	195	224.4*				229.3*					
26	238	26	182	168	218.7				223.3					
27	239	27	189	169	208.4				212.8					
28	240	1	174	160	210.0				214.2					
29	241	2	158	161	193.7				197.6					
30	242	3	150	134	184.3				187.8					
31	243	4	168	138	176.5				179.9					
MEAN			143.5	125.1	172.7				177.0					

Data not available at time of publication.

* Adjusted for burst.



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	29.0	33.4	39.1	45.6	51.9	56.9
1978	61.3	64.5	69.6	76.9	83.2	89.3	97.4	104.0	108.4	111.0	113.3	116.7
1979	122.8	130.4	135.0	138.1	140.9	145.5	150.0	153.1	155.2	156.4	156.7*	156.1
			(4)	(10)	(14)	(16)	(18)	(20)	(22)	(23)	(26)	(28)
1980	154.4	152.7	151.8	151.9	151.1	147.7	143.9	140.8	138.9	137.8	136.3	135.0
	(29)	(30)	(29)	(30)	(32)	(35)	(38)	(40)	(41)	(42)	(44)	(47)
1981	134.9	134.4	131.8	128.7	126.0	123.3	122.0	121.8	121.1	119.7	117.3	114.1
	(49)	(49)	(47)	(46)	(46)	(46)	(45)	(44)	(43)	(43)	(42)	(40)
1982	110.9	107.6	105.2	103.4	101.2	98.8	95.0	90.3	86.0	81.3	77.9	74.3
	(38)	(37)	(36)	(34)	(32)	(30)	(28)	(26)	(25)	(22)	(21)	(20)
1983	70.2	67.2	65.2	63.1	60.8	58.3	56.3	54.5	52.7	51.5	50.7	49.9
	(20)	(21)	(21)	(22)	(22)	(23)	(24)	(26)	(27)	(29)	(30)	(31)
1984	48.6	46.6	43.7	40.3	37.8	36.7	35.8	34.2	32.6	31.4	30.1	28.6
	(31)	(30)	(29)	(29)	(30)	(31)	(32)	(31)	(30)	(29)	(28)	(27)
1985	27.4	26.7	25.9	25.4	24.8	23.8	23.0	22.1	21.4	20.6	19.7	19.1
	(27)	(26)	(26)	(26)	(26)	(25)	(23)	(22)	(22)	(23)	(24)	(24)
1986	18.6	17.9	17.1	16.1	14.8	13.6	12.7	12.1	11.9	11.6	11.5	11.5
	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(17)	(16)	(15)	(13)
1987	11.9	12.5	13.4	14.4	15.5	16.6	17.7					
	(12)	(11)	(11)	(12)	(13)	(13)	(14)					

The table gives observed Zürich smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are received. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD 390-401 issues, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 mimimum.

*Prediction of Sunspot Maximum -- The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly towards the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1979) indicates that the most probable value for sunspot maximum is 156 ± 26.

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PALE	01	0430	0432	0436	S23	E 2	.437		1.3	6	SN	3	C		50		DE
ATHN	01	1008E	1010U	1033	S14	E 9	.327		2.1	25D	SB	3	C		80		F
HOLL	01	1405	1421	1510	S13	E 0	.273	16175	1.6	65	1B	3	C		213		FDE
RAMY	01	1407E	1414U	1416D	S12	E 1	.257		1.7	9D	SB	2	C		72		F
HUAN	01	1412		1457	S12	E03	.261		1.8	45	SN	1	C	1415	40	.4	E
BIGB	01	1416	1417	1429	S13	E04	.291		1.9	13	SN	2	C	1417	90	.9	
BIGB	01	1441	1443	1507	S13	E04	.281		1.9	26	SN	2	C	1443	50	.5	
BIGB	01	1602	1607	1645	S17	W65	.921		26.8	43	SN	2	C	1607	70		
HOLL	01	1644	1647	1703	S13	W 1	.274		1.6	19	SB	3	C		78		
HOLL	01	1758	1800	1818	S13	W 2	.275		1.6	20	SB	3	C		127		FDE
HUAN	01	1759	1800	1814	S13	E02	.275		1.9	15	SN	2	C	1800	60	.6	E
PALE	01	1800E	1801U	1820D	S13	W 2	.275		1.6	20D	SB	3	C		0		FDE
PALE	01	1835E	1837U	1850D	S13	W 2	.275		1.6	15D	SB	3	C		J		FDE
HOLL	01	1837	1839	1851	S13	W 2	.275		1.6	14	SB	3	C		113		FDE
BIGB	01	1838	1840	1844	S12	E00	.256		1.8	6	SB	2	C	1840	50	.5	
BIGB	01	1920	1924	1932	N20	E07	.317		2.3	12	SF	3	C	1924	40	.4	
BIGB	01	2001	2009	2017	N25	E80	.984		7.8	16	SN	3	C	2009	20		
BIGB	01	2022	2024	2032	N11	E26	.455		3.8	10	SF	3	C	2024	20	.2	
HOLL	01	2027	2028	2039	N15	W36	.609		29.2	12	SN	3	C		35		
HUAN	01	2032E		2045D	N17	W37	.629		29.1	13D	SF	1	P	2033	20	.2	D
BIGB	01	2046	2049	2055	S11	W01	.240		1.8	9	SB	3	C	2049	20	.2	K
HOLL	01	2046	2046	2055	S13	W 3	.278		1.6	9	SB	3	C		23		
HOLL	01	2107	2108	2117	S24	W 3	.454		1.7	10	SB	3	C		35		
BIGB	01	2108	2111	2120	S24	W03	.454		1.7	12	SN	3	C	2111	30	.3	
BIGB	01	2203	2204	2215	S11	W01	.240		1.8	12	SN	3	C	2204	20	.2	K
BIGB	01	2219	2221	2232	S14	W05	.302		1.6	13	SN	3	C	2221	70	.7	
BIGB	01	2226	2231	2257	N24	E80	.984		7.9	31	SN	3	C	2231	30		
ISTA	02	0604E		0620	S13	W04	.233		2.0	16D	SF		V				D
ISTA	02	0627		0645	N14	W43	.693		29.0	18	SF		V				D
HOLL	02	1316	1316	1334	N15	W45	.719		29.2	18	SN	3	C		35		
BIGB	02	1519	1522	1541	N24	E70	.943		7.9	22	SB	2	C	1522	60		
BIGB	02	1720	1721	1805	N25	E70	.943		8.0	45	SN	3	C	1721	20		
BIGB	02	1737	1740	1759	N18	W48	.759		29.1	22	SF	2	C	1740	30		
BIGB	02	1808	1811	1832	N25	E70	.943		8.0	24	SB	3	C	1811	20		D
HOLL	02	1821	1852	1859	S 7	E68	.931		7.9	38	SN	3	C		20		
HUAN	02	1926		1930	S10	E67	.927		7.8	4	SF	1	C	1927	15		D
HUAN	02	1941E		1947	S11	E65	.915		7.7	6D	SF	1	P				
BIGB	02	1944	1948	1954	S10	E64	.907		7.6	10	SN	3	C	1948	40		
HOLL	02	1951	1951	2009	N15	W49	.763		29.2	18	SB	3	C		20		F
HOLL	02	2105	2105	2121	N15	W51	.784		29.1	16	SB	3	C		82		FDE
PALE	02	2109E	2109U	2111D	N15	W51	.784		29.1	2D	SB	3	C		100		FDE
BIGB	02	2215	2216	2222	S10	E64	.907		7.7	7	SN	3	C	2216	40	.9	
HOLL	03	1340	1401	1415	N25	W77	.974		27.8	35	SN	3	C		20		
BIGB	03	1613	1616	1627	N25	W80	.984		27.7	14	SN	3	C	1616	60		
HOLL	03	1614	1619	1626	N25	W80	.984		27.7	12	SN	3	C		0		
HUAN	03	1617E		1628D	N26	W78	.978		27.8	11D	SN	1	P	1620	20		D
BIGB	03	1706	1710	1718	N25	W80	.984		27.7	12	SN	3	C	1710	30		
BIGB	03	1805	1809	1821	N25	W80	.984		27.8	16	SN	3	C	1809	40		
ISTA	04	0650E		0718	S14	W35	.626		1.7	28D	SB		V				D
ISTA	04	0713		0730	N26	E48	.781		7.9	17	SN		V				E
HUAN	04	1941		1945	N26	W90	1.000		28.1	4	SF	1	C	1941	20		D
HOLL	04	2019	2021	2033	S14	W43	.719		1.6	14	SB	2	C		93		DE
PALE	04	2020	2022U	2039	S13	W42	.704		1.7	19	SB	2	C		61		F
HOLL	04	2323	2324	2335	N 6	W30	.500		2.7	12	SN	2	C		21		
ISTA	05	0730E		0745	N16	W90	1.000		28.6	15D	SN		V				AB
BIGB	05	1438	1445	1455	S15	E78	.983		11.5	17	SB	2	C	1445	20		
BIGB	05	2055	2059	2104D	N05	W44	.694		2.6	9D	SN	1	P	2059	70	1.0	
WEND	06	0831		0853	N09	W54	.808		2.3	22	SF		C	0845	15	.3	CD
WEND	06	0831	0845	0904D	N07	W57	.837		2.1	33D	SN		C	0845	30	.6	CD
WEND	06	1056		1216D	N25	E84	.993		12.8	80D	SN		C		40		A
HOLL	07	1916	1917	1923	N16	E75	.964		13.4	7	SB	3	C		17		F
BIGB	07	1955E	2000	2000D	N11	E80	.983		13.8	5D	SN	1	P	2000	30		
BIGB	07	2005E	2010	2028	N01	W70	.940		2.6	23D	SN	1	P	2010	40		
RAMY	07	2007	2037	2028D	N16	E75	.964		13.5	21D	SF	2	C		22		F
HOLL	07	2008	2008	2100D	N18	E74	.960		13.4	52D	SB	3	C		0		F
RAMY	07	2009	2011	2019	N 3	W69	.933		2.7	10	SN	2	C		14		

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	07	2017	2032	2053E	N20	E80	.983		13.8	360	SB	2	P	2032	100		Y
BIGB	08	1705	1707	1730	N05	W80	.994		2.7	25	SN	1	C	1707	40		
BIGB	08	1737	1744	1803	N12	E70	.938		14.0	26	SB	2	C	1744	70		
PALE	08	1740	1745	1801	N11	E72	.949		14.1	21	SN	3	C		81		
HOLL	08	1743	1748	1617	N15	E68	.926		13.8	34	SB	3	C		136		U F
BIGB	08	2248	2252	2319	N20	E66	.915		13.9	31	SF	2	C	2252	20		
ISTA	09	0616		0648	N05	W90	1.000	16176	2.5	32	1N		V				A
ISTA	09	0634		0648	N16	E63	.891	16208	14.0	14	1B		V				E
ISTA	09	0802		0805	S26	E23	.604		11.1	3	SN		V				D
ISTA	09	0808		0810	N16	E63	.891		14.1	2	SN		V				D
ATHN	09	0835	0838	0846	N12	E58	.848		13.7	11	SB	3	C		32		F
HOLL	09	1344	1434	1501	N16	E60	.867		14.1	77	SB	3	C		21		
BIGB	09	1420	1424	1457	N12	E59	.856		14.0	37	SN	2	C	1424	30	.6	
HOLL	09	1438	1448	1504	S16	W69	.945		4.4	26	SN	3	C		21		
HOLL	09	1627	1630	1639	N16	E59	.859		14.1	12	SN	3	C		24		
HOLL	09	1648	1727	1840	N13	E58	.848		14.1	112	SN	3	C		54		FDE
HOLL	09	1648	1745	1840	N13	E58	.848		14.1	112	SB	3	C		88		FDE
RAMY	09	1721	1743	1823	N14	E57	.840		14.0	62	SB	3	C		87		FDE
HOLL	09	1727	1745	1747D	N13	E58	.848		14.1	200	SB	3	V		88		FDE
PALE	09	1739	1744	1809	N13	E57	.839		14.0	30	SB	3	C		38		FDE
BIGB	10	0126E	0134	0139D	N13	E54	.810		14.1	130	SN	1	P	0134	40	.7	
ATHN	10	0919E	0921U	1010	N12	E47	.734		13.9	510	SB	3	C		80		F
BIGB	10	1844	1848	1902	N20	E40	.672		13.8	18	SF	2	C	1848	20	.3	
BIGB	10	2013	2043	2202	N13	W14	.286		9.8	109	SN	2	C	2043	150	1.6	G
BIGB	10	2026	2040	2135	N24	W60	.876		6.4	69	SN	2	P	2040	60	1.2	G
BIGB	10	2100	2103	2110	N22	W71	.945		5.6	10	SN	2	C	2103	20		
ISTA	11	0635E		0650	N12	E36	.595		14.0	150	SN		V				D
ISTA	11	0713		0717	N21	E33	.592		13.8	4	SN		V				D
ISTA	11	0717		0719	N16	E34	.581		13.9	2	SN		V				D
RAMY	11	1256	1300	1312	S25	W 5	.490		11.2	16	SN	3	C		28		F
RAMY	11	1337	1339	1346	N15	E32	.550		14.0	9	SB	3	C		34		
RAMY	11	1355	1356	1358	N15	E32	.550		14.0	3	SN	3	C		31		
RAMY	11	1656	1657	1715	N15	E31	.537		14.0	19	SB	3	C		68		
HOLL	11	1658	1658	1709	N16	E30	.528		14.0	11	SB	3	C		48		
PALE	11	1701E	1701U	1707	N14	E29	.505		13.9	60	SN	3	C		25		
PALE	12	0058	0059	0103	N14	E26	.462		14.0	5	SN	3	C		57		FDE
PALE	13	0232	0241	0250	N11	E 6	.182		13.7	18	SB	3	C		79		FDE
BIGB	13	1424	1429	1436	S29	E05	.551		14.0	12	SF	2	C	1429	30	.3	G
RAMY	13	1456	1457	1510	N15	E 5	.207		14.0	14	SN	3	C		42		
BIGB	13	1533	1534	1544	S08	E68	.933		18.7	11	SN	2	C	1534	30		G
BIGB	13	1538	1540	1542	S21	E90	1.000		20.4	4	SN	2	C	1540	20		
BIGB	13	1807	1808	1810	S21	E90	1.000		20.5	3	SF	2	C	1808	30		
HUAN	13	1807		1809	S22	E90	1.000		20.5	2	SF	1	C				
BIGB	13	1810	1813	1830	S23	E90	1.000		20.5	20	SF	2	C	1813	30		
RAMY	13	1837	1837	1842	N15	E 3	.196		14.0	5	SN	3	C		23		
BIGB	13	2041	2042	2053E	S23	E90	1.000		20.6	120	SF	2	P	2042	20		
BIGB	13	2152	2211	2242	S23	E90	1.000		20.7	50	SN	2	C	2211	30		
BIGB	13	2242	2244	2327	S25	E90	1.000		20.7	45	SB	2	C	2244	40		
WEND	14	0557E		0610D	S24	E71	.964		19.6	130	SF		C	0601	30		T
WEND	14	0614		0630	S05	E53	.806		18.2	16	SF		C	0624	20	.3	D
WEND	14	0624		0704D	S24	E70	.959		19.5	400	SN		C	0700	35		T
WEND	14	0649		0702	S22	E80	.991		20.3	13	SN		C	0653	30		T
ISTA	14	0745E		0910	S25	E75	.979	16224	19.9	850	3B		V				AK
ISTA	14	0750		0803	S26	W08	.518		13.7	13	SB		V				D
ISTA	14	0820		0833	S25	W15	.539		13.2	13	SN		V				E
WEND	14	1003	1007	1025	S16	W40	.700		11.4	22	SN		C	1007	34	.5	
WEND	14	1042		1124	S16	W37	.667		11.7	42	SF		C	1051	25	.3	
WEND	14	1153		1203	S23	E70	.958		19.7	10	SN		C	1157	25		T
WEND	14	1218		1231	S22	E69	.953		19.7	13	SF		C	1223	45		T
WEND	14	1218	1221	1236	N20	W10	.318		13.8	18	SN		C	1221	75	.9	E
RAMY	14	1228	1231	1258	N19	W10	.304	16208	13.8	30	1N	3	C		221		H
RAMY	14	1243	1546	1743D	S22	E73	.970	16224	20.0	300D	1B	3	C		0		Y
RAMY	14	1243	1244	1743D	S22	E73	.970	16224	20.0	300D	1N	3	C		0		Y
WEND	14	1244E		1430D	S27	E72	.970	16224	19.9	106D	1N		C	1258	70		AT
HUAN	14	1340E		1411D	S27	E80	.993		20.6	31D	SN	1	P	1347	40		E

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	14	1500	1521	1539	S21	E52	.837		18.5	39	SN	3	C		32		
HUAN	14	1500		1525	S23	E54	.860		18.7	25	SF	1	C	1508	15	.3	D
RAMY	14	1500	1508	1539	S21	E52	.837		18.5	39	SB	3	C		40		
RAMY	14	1542	1548	1551	S17	W42	.726		11.5	9	SN	3	C		21		
HUAN	14	1542	1546	1552	S24	E60	.992		20.7	10	SN	2	C	1546	20		D
BIGB	14	1543	1544	1554	S23	E76	.981		20.4	11	SB	2	C	1544	120		A
RAMY	14	1609	1614	1623	S21	E51	.829		18.5	14	SB	3	C		55		
BIGB	14	1612	1614	1624	S23	E35	.691		17.3	12	SB	2	C	1614	30	.4	
HUAN	14	1612	1615	1619	S23	E56	.875		18.9	7	SN	2	C	1615	25	.5	D
WEND	14	1619E		1631	S27	E72	.970		20.1	120	SF		C	1621	40		AT
WEND	14	1700E		1729D	S27	E71	.967		20.0	290	SF		C	1717	65		T
WEND	14	1728		1730D	S16	W44	.743		11.4	20	SN		C	1729	50	.8	
RAMY	14	1729	1730	1743D	S18	W45	.762		11.4	140	SB	3	C		148		H
HUAN	14	1729	1730	1745	S18	W46	.772		11.3	16	SN	2	C	1730	50	.8	
BIGB	14	1842	1844	1846	S23	E66	.939		19.7	4	SB	1	C	1844	20		
BIGB	14	1953	1954	2000	S23	E66	.939		19.8	7	SB	2	C	1954	30		
BIGB	14	2009	2010	2014	S26	E70	.962		20.1	5	SB	2	C	2010	20		D
RAMY	14	2010	2011	2017	S22	E65	.932		19.7	7	SB	2	C		32		
BIGB	14	2013	2015	2022	S23	E52	.844		18.7	9	SB	2	C	2015	60	1.0	
HUAN	14	2014	2015	2024	S23	E54	.860		18.9	10	SN	2	C	2015	25	.4	D
BIGB	14	2048	2050	2057	S16	W48	.784		11.3	9	SB	2	C	2050	30	.5	
HUAN	14	2048	2052	2104	S17	W48	.787		11.3	16	SN	1	C	2052	30	.5	
HUAN	14	2051	2052	2057	S23	E68	.949		20.0	6	SN	1	C	2052	50		E
BIGB	14	2051	2052	2100	S22	E66	.937		19.8	9	SB	2	C	2052	90		
PALE	14	2130E	2130U	2215D	S25	E71	.965		20.2	450	SB	1	C		40		F
BIGB	14	2147	2150	2200	S16	W45	.753		11.5	13	SB	1	C	2150	40	.6	
BIGB	14	2311	2313	2317	S12	E70	.948		20.2	6	SB	2	C	2313	40		
BIGB	14	2352	2356	2400D	S23	E68	.949		20.1	80	SB	2	C	2356	60		
PALE	15	0000E	0000U	0005D	S25	E70	.961		20.3	50	SB	3	C		20		FDE
BIGB	15	0041	0042	0051	S16	W50	.803		11.3	10	SN	2	C	0042	20	.3	E
WEND	15	0642E		0709D	S24	E54	.863		19.3	270	SF		C	0709	30	.6	
WEND	15	0821E		0835D	S23	E43	.767		18.6	140	SN		C	0821	40	.6	
RAMY	15	1232	1235	1246	N32	W24	.583		13.7	14	SN	3	C		24		F
WEND	15	1336		1347	N21	W21	.444		14.0	11	SN		C	1340	60	.7	
RAMY	15	1338	1340	1346	N20	W21	.435		14.0	8	SN	3	C		72		U
WEND	15	1359		1432	N20	W23	.459		13.9	33	SN		C	1407	75	.9	
HUAN	15	1404	1408	1425	N19	W25	.477		13.7	21	SN	1	C	1408	50	.5	
RAMY	15	1405	1411	1425	N19	W24	.464		13.8	20	SN	3	C		100		
RAMY	15	1405	1408	1425	N19	W24	.464		13.8	20	SB	3	C		134		
WEND	15	1527	1531	1539	S23	E40	.739		18.6	12	SN		C	1531	75	1.1	
HUAN	15	1528	1530	1541	S24	E43	.772		18.9	13	SN	2	C	1530	70	1.1	
RAMY	15	1528	1531	1550	S23	E41	.748	16221	18.7	22	1B	3	C		172		
BIGB	15	1528	1529	1538	S23	E41	.748		18.7	10	SB	2	C	1529	70	1.0	
BIGB	15	1641	1642	1644	S23	E52	.844		19.6	3	SN	2	C	1642	10	.2	
WEND	15	1712		1724	S26	E54	.870		19.6	12	SF		C	1714	30	.6	
BIGB	15	1713	1714	1725	S26	E55	.877		19.8	12	SB	2	C	1714	60	1.1	
RAMY	15	1714	1719	1730	S27	E53	.866		19.7	16	SB	3	C		77		F
HUAN	15	1714		1725	S28	E57	.896		20.0	11	SF	1	C				E
BIGB	15	1735	1736	1739	N18	E36	.613		18.4	4	SF	2	C	1736	20	.3	
BIGB	15	1922	1924	1928D	S23	E33	.730		18.7	60	SB	1	P	1924	20	.3	E
PALE	15	1931	1933	1957D	S23	E29	.634		18.0	260	SN	3	C		36		F
WEND	16	0607E		0622D	S26	E50	.840		20.0	150	SN		C	0607	90	1.6	BE
ISTA	16	0615E		0712	S22	E52	.841	16231	20.2	570	1B		V				U
ISTA	16	0615E		0653	S26	E56	.884	16231	20.5	380	1B		V				D
RAMY	16	1134	1141	1200	S25	E47	.812		20.0	26	SN	3	C		23		
RAMY	16	1137	1145	1314	N18	E24	.456		18.3	97	SB	3	C		191		U
RAMY	16	1204	1207	1217	S25	E47	.812		20.0	13	SN	3	C		23		
RAMY	16	1240	1240	1243	N10	E80	.983		22.5	3	SF	3	C		0		
BIGB	16	1526	1533	1554	S25	E49	.828		20.3	28	SN	1	C	1533	50	.8	
RAMY	16	1531	1532	1540	S26	E48	.824		20.2	9	SN	3	C		30		F
PALE	16	2022	2028	2033	S27	E43	.789		20.1	11	SN	3	C		59		F
HUAN	17	2110		2115	S24	E24	.600		19.7	5	SF	1	C	2114	20	.2	D
MANI	18	0256E	0256	0305D	S25	E18	.565		19.5	90	SB	3	C		100		
ISTA	18	0618		0648	N38	E58	.845		22.6	30	SB		V				EG
ISTA	18	0700		0720	N13	W48	.744		14.7	20	SN		V				D
HUAN	18	1327	1328	1332	S24	E17	.545		19.8	5	SF	1	C	1328	15	.2	D
HUAN	18	1400	1402	1411	S24	E15	.532		19.7	11	SN	2	C	1402	40	.4	E
RAMY	18	1402	1403	1410	S26	E19	.584		20.0	8	SB	3	C		45		F

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HUAN	18	1421	1430	1436	N08	E90	1.000		25.3	15	SN	1	C	1430	30		
RAMY	18	1422	1431	1434	N 9	E90	1.000	16239	25.3	12	1B	3	C		0		
RAMY	18	1448	1503	1533	N 9	E81	.986		24.7	45	SN	3	C		0		
RAMY	18	1448	1520	1533	N 9	E81	.986		24.7	45	SN	3	C		0		
RAMY	18	1454	1455	1503	S26	E18	.577		20.0	9	SB	3	C		41		FDE
HUAN	18	1454	1454	1500	S27	E25	.640		20.5	6	SN	2	C	1454	40	.5	E
BIGB	18	1457E	1516	1529E	N09	E90	1.000		25.4	32D	SN	1	P	1516	60		
BIGB	18	1731	1743	1752D	S16	E76	.978		24.4	21D	SB	1	P	1743	60		
HUAN	18	1731		1744D	S15	E82	.994		24.9	13D	SN	1	P	1739	30		E
RAMY	18	1731	1741	1812D	S14	E73	.965		24.2	41D	SB	3	C		0		FDE
HOLL	18	1847	1849	1908	S26	E16	.563		20.0	21	SB	3	C		40		
HUAN	18	1847		1856	S24	E13	.519		19.8	9	SN	1	C	1849	35	.4	E
HUAN	18	1928		1933	S27	E23	.624		20.5	5	SF	1	C				E
HUAN	18	2030		2045D	S23	E11	.494		19.7	15D	SN	1	P	2030	30	.3	E
HOLL	18	2031	2032	2047	S26	E16	.563		20.1	16	SB	3	C		36		
MANI	19	0615E	0615U	0621	S22	E07	.463		19.8	6D	SF	3	C		25	.3	
ISTA	19	0658		0708	S21	E07	.448		19.8	10	SN		V				E
MANI	19	0705E	0705U	0713D	S22	E 9	.471		20.0	8D	SN	3	C		15		
ISTA	19	0744		0757	N04	E90	1.000		26.1	13	SF		V				AD
RAMY	19	1146	1201	1206	S14	E44	.737		22.8	20	SN	3	C		18		
RAMY	19	1209	1211	1237	N13	W61	.872		14.9	28	SN	3	C		17		
RAMY	19	1314	1335	1405	S14	E44	.737		22.9	51	SN	3	C		57		
HUAN	19	1536		1557	S26	E03	.525		20.3	21	SN	1	C	1547			E
HOLL	19	1538	1540	1559	S26	E 5	.516		20.0	21	SB	3	C		57		
BIGB	19	1538	1542	1556	S25	E05	.501		20.0	18	SN	2	C	1542	50	.5	
RAMY	19	1539	1540	1552	S25	E 5	.501		20.0	13	SN	3	C		33		
BIGB	19	1541	1544	1608	S16	E43	.735		22.9	27	SN	2	C	1544	20	.3	
HOLL	19	1554	1555	1614	S16	E62	.904		24.3	20	SF	3	C		23		
RAMY	19	1555	1556	1559	S17	E63	.913		24.4	4	SF	3	C		20		
HUAN	19	1645E		1649D	S15	E45	.752		23.1	4D	SF	1	P	1648	20	.3	CD
BIGB	19	1645	1647	1700	S16	E42	.724		22.8	15	SN	1	C	1647	20	.3	
PALE	19	1758	1759	1806	N13	W65	.903		14.9	8	SN	3	C		22		
PALE	19	1826	1827	1832	S16	E41	.714		22.8	6	SN	3	C		21		DE
HOLL	19	2019	2020	2029	S24	E 2	.481		20.0	10	SB	3	C		35		F
HOLL	19	2053	2058	2118	N12	W66	.910		14.9	25	SB	3	C		35		F
HOLL	19	2107	2110	2117	S22	W 3	.452		19.7	10	SB	3	C		51		U
HOLL	19	2156	2157	2205	N11	W69	.931		14.7	9	SN	3	C		12		
HOLL	19	2223	2224	2233	S26	E 2	.511		20.1	10	SN	3	C		23		F
HOLL	19	2228	2336	2339	N 7	E80	.983		25.9	71	SB	3	C		0		Y
HOLL	19	2228	2306	0033	N 7	E80	.983		25.9	125	SB	3	C		0		Y
HOLL	19	2228	2251	2339	N 7	E80	.983		25.9	71	SN	3	C		0		Y
HOLL	20	0052	0108	0119	N 6	E76	.969		25.7	27	SB	2	C		34		DE
HOLL	20	0100	0101	0116	S22	W 6	.460		19.6	16	SN	2	C		24		
MANI	20	0105E	0109U	0114D	N 5	E75	.964		25.7	9D	SB	3	C		20		
HOLL	20	0118	0119	0121D	S28	E 4	.545		20.4	3D	SB	2	C		25		
MANI	20	0245E	0245U	0255D	N 5	E76	.969		25.8	10D	SB	3	C		50		
MANI	20	0508E	0513U	0519D	N 5	E75	.964		25.8	11D	SB	3	C		50		
ISTA	20	0700E		0732	N06	E90	1.000	16239	27.0	32D	1B		V				AB
ATHN	20	0723E	0725	0750	N 5	E77	.973	16239	26.1	27D	1B	4	C		222		Z
ISTA	20	0728		0739	S16	E35	.648		22.9	11	SN		V				D
ISTA	20	0815		0850	N07	E77	.973	16239	26.1	35	1B		V				U
ATHN	20	0906	0923	1045	N 5	E76	.969	16239	26.1	99	2B	4	C		254		FDE
RAMY	20	1141	1148	1322	N 7	E72	.949		25.9	101	SB	3	C		70		
RAMY	20	1142	1144	1148	S25	W 5	.503		20.1	6	SB	3	C		36		
RAMY	20	1242	1330	1308	N12	W76	.976		14.7	26	SN	3	C		0		
RAMY	20	1308	1311	1352	N 8	E28	.470		22.6	44	SB	3	C		79		
RAMY	20	1318	1321	1324	N12	W78	.976		14.7	6	SN	3	C		0		
RAMY	20	1323	1404	1427	N 7	E74	.959		26.1	64	SB	3	C		0		F
RAMY	20	1419	1455	1503	S15	E15	.419		21.7	44	SF	3	C		23		
RAMY	20	1527	1531	1531	S15	E15	.419		21.8	4	SF	3	C		29		
RAMY	20	1545	1608	1629	S15	E14	.409		21.7	44	SB	3	C		132		F
HOLL	20	1604	1607	1805	S16	E14	.422	16231	21.7	121	1B	3	V		197		U
RAMY	20	1605	1627	1630D	S30	E70	.967		25.9	25D	SN	3	C		14		
RAMY	20	1618	1618	1630	S12	E42	.707		23.8	12	SN	3	C		26		
HOLL	20	1627	1629	1639	S30	E75	.983		26.3	12	SN	3	C		9		
BIGB	20	1652E	1657	1729	S16	E06	.368		21.2	37D	SN	2	P	1657	120	1.2	
BIGB	20	1701	1706	1719	S23	E51	.839		24.5	18	SN	2	C	1706	30	.5	
HOLL	20	1702	1702	17150	S18	E50	.812		24.5	13D	SB	3	C		31		
HUAN	20	1703E		1744	S16	E16	.440		21.9	41D	SN	1	P	1705	110	1.2	E

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HUAN	20	1703E		1715	S22	E54	.859		24.8	12D	SN	1	P	1703	25	.5	D
HUAN	20	1725	1733	1745	S12	E44	.730		24.0	20	SN	1	C	1733	35	.5	
BIGB	20	1726	1728	1747	S13	E73	.964		26.2	21	SN	2	C	1728	30		
HOLL	20	1728	1729	1743	S12	E41	.696		23.8	15	SB	3	C		57		
BIGB	20	1730	1732	1739	N05	E78	.977		26.6	9	SB	2	C	1732	30		E
HOLL	20	1731	1731	1742	N 7	E66	.911		25.7	11	SB	3	C		20		
HUAN	20	1831	1832	1835	N05	E81	.987		26.8	4	SF	1	C	1832	30		E
HUAN	20	1850		1857	S15	E14	.409		21.8	7	SF	1	C				E
PALE	20	1911	1931U	1935	N 5	E70	.938		26.0	24	SN	3	C		46		DE
PALE	20	1937	2011U	2014D	N 5	E70	.938		26.1	37D	SB	3	C		48		DE
HOLL	20	1945	1948	1953	N 7	E71	.943		26.1	8	SB	3	C		14		F
BIGB	20	2110	2111	2135	S14	E41	.705		24.0	25	SB	1	P	2111	40	.5	
PALE	20	2113	2113	2142D	S13	E40	.689		23.9	29D	SB	3	C		72		
HOLL	20	2121	2121	2130	S26	W11	.538		20.1	9	SN	3	C		29		
HOLL	20	2228	2251	0033	N 7	E80	.983		26.9	125	SN	3	C		55		Y
HOLL	20	2231	2235	2340	N 9	E21	.363		22.5	69	SB	3	C		67		
BIGB	20	2232	2236	2303	N07	E22	.374		22.6	31	SN	2	C	2236	30	.3	E
PALE	20	2332E	2343U	2343D	N 7	E62	.880		25.6	11D	SB	2	C		20		FDE
HOLL	20	2340	2347	2350	N 7	E62	.880		25.6	10	SB	3	C		18		
MANI	20	2350E	2350U	0005D	N 5	E65	.925		26.1	15D	SN	3	C		20		
MANI	20	2351E	2353	0005D	S15	E12	.392		21.9	14D	SB	3	C		30		
PALE	21	0205E	0206U	0206D	N 6	E65	.904		26.0	1D	SN	3	C		49		FDE
MANI	21	0611	0613	0645D	N15	W39	.625	16218	18.4	34D	SB	3	C		200	2.6	U
ATHN	21	0614E	0616	0648D	N16	W42	.678	16218	18.1	34D	SB	5	C		254		U
ISTA	21	0615E		0655	N17	W40	.656	16218	18.3	40D	SB		V				BU
WEND	21	0635E		0653D	N17	W41	.668		18.2	18D	SN		C	0641	130	1.9	U
ISTA	21	0715		0730	N13	W90	1.000	16208	14.6	15	1N		V				A
RAMY	21	1146	1206	1220	S31	E56	.901		25.7	34	SN	3	C		30		H
RAMY	21	1301	1303	1315	S30	E58	.910		25.9	14	SN	3	C		19		
HUAN	21	1321E		1328	S25	W27	.640		19.5	7D	SF	1	P	1322	20	.2	D
HUAN	21	1333		1351	S25	W26	.631		19.6	18	SF	1	C	1333	35	.4	E
HOLL	21	1334	1334	1437	S22	W28	.621		19.5	63	SB	3	C		46		FDE
RAMY	21	1342	1342	1351	S25	W19	.575		20.1	9	SN	3	C		23		
BIGB	21	1416	1417	1430	S23	W28	.630		19.5	14	SN	2	C	1417	40	.5	
HUAN	21	1418E		1421	S24	W26	.621		19.6	3D	SF	1	P				E
HOLL	21	1508	1542	1547	N16	W47	.736		18.1	39	SN	3	C		17		
HOLL	21	1526	1526	1539	N 7	E58	.845		26.0	13	SN	3	C		15		
HUAN	21	1548	1549	1554	S25	W26	.631		19.7	6	SN	2	C	1549	45	.6	E
BIGB	21	1549	1550	1601	S23	W28	.630		19.6	12	SN	2	C	1550	30	.4	
HOLL	21	1549	1550	1603	S26	W21	.602		20.1	14	SB	3	C		43		
HUAN	21	1630		1641D	S15	E01	.340		21.8	11D	SF	1	P				E
HOLL	21	1640	1652	1735	N 8	E54	.806		25.7	55	SB	3	C		75		DE
HUAN	21	1646E		1705D	N08	E55	.816		25.8	19D	SN	1	P	1655	60	1.0	E
BIGB	21	1648	1656	1733	N07	E55	.816		25.8	45	SB	2	C	1656	50	.9	
RAMY	21	1654	1654	1703	S15	E 1	.340		21.8	9	SN	3	C		24		
RAMY	21	1654E	1656U	1719	N 6	E57	.836		26.0	25D	SB	3	C		110		F
BIGB	21	1734	1735	1749	S15	E00	.340		21.7	15	SN	2	C	1735	30	.3	
HOLL	21	1735	1736	1749	S14	W 1	.324		21.7	14	SB	3	C		60		DE
HUAN	21	1736	1737	1747	S15	E01	.340		21.8	11	SN	1	C	1737	50	.5	E
PALE	21	1736	1736	1742	S16	W 1	.357		21.7	6	SN	3	C		43		DE
BIGB	21	1748	1751	1805	S23	W30	.649		19.5	17	SN	2	C	1751	70	.8	
HUAN	21	1749	1752	1803	S25	W28	.648		19.6	14	SN	2	C	1752	100	1.3	E
HOLL	21	1749	1753	1802	S26	W22	.609		20.1	13	SB	3	C		81		
PALE	21	1752	1753	1759	S24	W30	.657		19.5	7	SN	3	C		31		DE
HUAN	21	1800		1807D	S15	E01	.340		21.8	7D	SN	1	P	1804	50	.5	E
PALE	21	1801	1803	1816	S15	W 1	.340		21.7	15	SN	3	C		43		DE
BIGB	21	1801	1802	1819	S15	E00	.340		21.8	18	SB	2	C	1802	40	.4	
BIGB	21	1826	1828	1831	N05	E57	.836		26.0	5	SB	2	C	1828	20	.4	D
BIGB	21	1934	1935	1951	S15	W03	.344		21.6	17	SF	2	C	1935	30	.3	
BIGB	21	1935	1936	1945	N05	E56	.827		26.0	10	SN	2	C	1936	20	.4	
HOLL	21	1935	1936	1946	S14	W 2	.325		21.7	11	SB	3	C		52		
PALE	21	1936	1937	1940	S15	W 2	.342		21.7	4	SN	3	C		22		DE
BIGB	21	2056	2057	2109	N05	E57	.836		26.1	13	SN	2	C	2057	30	.6	
BIGB	21	2057	2111	2133	S32	E56	.904		26.1	36	SN	2	C	2111	30	.6	
BIGB	21	2149	2152	2202	N05	E57	.836		26.2	13	SF	2	C	2152	30	.6	
BIGB	21	2153	2156	2207	S14	E26	.529		23.9	14	SF	2	C	2156	20	.2	
BIGB	21	2221	2229	2236	N04	E55	.817		26.1	15	SN	2	C	2229	70	1.2	
BIGB	21	2232	2239	2245	S32	E55	.898		26.1	13	SN	2	C	2239	30	.5	
HOLL	21	2256E	2256U	0116D	S27	W21	.613		20.4	140D	SN	3	C		65		
HOLL	21	2300	2308	0034	N 5	E54	.807		26.0	94	SB	3	C		107		DE
BIGB	21	2307	2308	2319	N04	E55	.817		26.1	12	SN	2	C	2308	80	1.4	

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PALE	21	2313E	2313U	2324	S 6	E55	.829		26.1	11D	SN	3	C		30		F
PALE	21	2351	0000	0030D	S 6	W54	.819		17.9	39D	SB	3	C		40		F
BIGB	22	0000	0001	0013	N04	E55	.817		26.1	13	SN	2	C	0001	30	.3	
MANI	22	0001E	0001U	0029D	N 6	E55	.817		26.1	28D	SB	3	C		50		F
HOLL	22	0037	0045	01160	N 6	E53	.796		26.0	39D	SB	2	C		69		
MANI	22	0040E	0042	0047D	N 6	E55	.817		26.2	7D	SB	3	C		60		
PALE	22	0044	0046	0052	N 6	E54	.806		26.1	8	SB	3	C		28		
HOLL	22	0104	0106	0116	S12	E24	.489		23.8	12	SN	2	C		31		
PALE	22	0229E	0229U	0253D	S26	W26	.642		20.2	24D	SN	3	C		122		DE
PALE	22	0229E	0259	0300D	N 6	E51	.775		25.9	31D	SN	3	C		57		FDE
PALE	22	0229E	0237	0300D	N 6	E51	.775		25.9	31D	SN	3	C		37		FDE
WEND	22	0704E		0733D	N05	E52	.786		26.2	29D	SF		C	0705	40	.7	
HOLL	22	1342	1344	1356	S25	W42	.773		19.4	14	SN	3	C		21		
HOLL	22	1344	1347	1355	S13	W13	.377		21.6	11	SB	3	C		41		
BIGB	22	1513	1514	1538	N18	W59	.857		18.2	25	SF	3	C	1514	40	.8	
BIGB	22	1547	1549	1555	S22	E85	.999		29.0	8	SN	3	C	1549	80		A
HUAN	22	1548	1551	1557	S21	E87	1.000		29.2	9	SN	1	C	1551	30		
HOLL	22	1641	1642	1646	S26	W34	.710		20.1	5	SB	3	C		38		
BIGB	22	1641	1642	1642D	S23	W43	.771		19.5	1D	SN	3	P	1642	30	.4	
HUAN	22	1644E		1650	S25	W42	.773		19.5	6D	SF	1	P	1645	20	.3	D
BIGB	22	1722	1727	1807	N05	E47	.729		26.2	45	SN	3	C	1727	40	.6	
HUAN	22	1724		1750	N06	E47	.729		26.3	26	SF	1	P	1735	55	.8	E
PALE	22	1726E	1732	1857D	N 6	E44	.692		26.0	91D	SN	3	C		32		FDE
HUAN	22	1749		1759	S14	E19	.450		24.2	10	SF	1	C				D
BIGB	22	1753	1754	1803	S13	E18	.428		24.1	10	SN	3	C	1754	40	.4	
PALE	22	1756	1757	1857D	S14	E15	.408		23.9	61D	SN	3	C		23		FDE
HOLL	22	1850	1858	1947	N 8	E40	.641		25.8	57	SB	3	C		61		FDE
RAMY	22	1851	1857	1949	N 6	E42	.667		25.9	58	SB	3	C		51		F
HUAN	22	1853		1932	N08	E40	.641		25.8	39	SN	1	C	1904	35	.4	
PALE	22	1912E	1912U	2033D	N 7	E39	.627		25.7	81D	SB	3	C		52		
BIGB	22	2154	2200	2212	S25	W45	.799		19.5	18	SF	3	C	2200	40	.6	
BIGB	22	2155	2158	2238	N15	E50	.768		26.7	43	SF	2	C	2158	40	.6	G
BIGB	22	2215	2219	2235	N05	E43	.680		26.2	20	SN	2	C	2219	20	.3	
BIGB	22	2248	2249	2306	S35	E51	.886		26.8	18	SF	2	C	2249	20	.3	
HOLL	22	2300	0000	0034	N 5	E54	.807		27.0	94	SB	3	C		65		DE
HOLL	22	2300	2308	0034	N 5	E54	.807		27.0	94	SB	3	C		107		DE
HOLL	22	2333	2334	2336D	S14	W29	.566		20.8	3D	SB	3	V		92		
BIGB	22	2333	2334	2340	S12	W33	.601		20.5	7	SN	2	C	2334	20	.2	G
BIGB	22	2341	2350	2400D	S22	E75	.978		28.6	19D	SN	2	P	2350	70		
PALE	22	2351	0000	0030D	S 6	W54	.819		18.9	39D	SB	3	C		40		F
PALE	22	2351	0000	0030D	N 6	E54	.806		27.0	39D	SB	3	C		40		F
HOLL	22	2353	2353	0010	S19	E73	.969	16245	28.5	17	1N	3	C		0		
PALE	23	0307	0312	0319	N 6	E42	.667		26.3	12	SN	3	C		63		FDE
RAMY	23	1213	1213	1241	N 7	E36	.586		26.2	28	SB	3	C		78		F
RAMY	23	1244	1250	1449	N 7	E29	.483	16239	25.7	125	1B	3	C		223		Z U
HUAN	23	1244	1259	1454	N05	E30	.498	16239	25.8	130	1N	2	C	1259	220	2.6	EU
WEND	23	1329E		1419D	N08	E29	.484	16239	25.7	50D	1N		P	1329	180	2.2	B
HOLL	23	1331E	1332	1451	N 8	E34	.558		26.1	80D	SB	3	C		134		
BIGB	23	1433E	1433U	1458D	N09	E28	.470		25.7	25D	SF	2	P	1433	40	.5	
HUAN	23	1458	1459	1500	S32	E36	.771		26.3	2	SF	1	C	1459	20	.3	D
HUAN	23	1507		1524	N06	E35	.571		26.3	17	SF	1	C	1512	30	.3	
HOLL	23	1508	1509	1523	N 5	E33	.543		26.1	15	SN	3	C		51		F
BIGB	23	1756	1757	1835	S13	W30	.571		21.5	39	SF	3	C	1757	30	.4	
BIGB	23	1801	1804	1837	N25	W56	.840		19.6	36	SF	3	C	1804	60	1.1	
HOLL	23	1811	1812	1831	N26	W54	.825		19.7	20	SN	3	C		36		
BIGB	23	1833	1834	1838	S36	W43	.843		20.5	5	SF	3	C	1834	30	.4	
BIGB	23	1838	1839	1840D	S35	W41	.825		20.7	2D	SB	3	P	1839	20	.3	D
HUAN	23	1838	1840	1844	S35	W43	.838		20.6	6	SN	2	C	1840	25	.4	D
HOLL	23	1839	1839	1845	S25	W50	.840		20.0	6	SB	3	C		21		
HUAN	23	1935	1936	1938	N05	E32	.528		26.2	3	SF	1	C	1936	30	.3	
BIGB	23	1935	1936	1942	N05	E32	.528		26.2	7	SN	3	C	1936	40	.5	
HOLL	23	2300	0000	0034	N 5	E54	.807		28.0	94	SB	3	C		65		DE
BIGB	23	2316	2325D	2359D	N07	E32	.528		26.4	43D	SN	3	P	2325	150	1.8	
HOLL	23	2326E	2326U	2353D	N 5	E28	.468		26.1	27D	SB	3	C		0		F
HOLL	23	2333	2334	0009	S12	W33	.601		21.5	36	SB	3	C		92		
PALE	24	0122	0129	0138	N17	E37	.617		26.8	16	SN	3	C		24		DE
PALE	24	0209	0215	0404	N18	E36	.608		26.8	115	SN	3	C		58		
BUCA	24	0700		0720	N25	W68	.927		19.2	20	SB		C	0702	32	.8	D
RAMY	24	1159	1212	1314	N 6	E20	.341	16239	26.0	75	1B	3	C		330		F

Hα SOLAR FLARES

AUGUST 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME — UT	MEAS. AREA MIL. of Disk	CORR. AREA Sq. Deg.	
HUAN	24	1316	1321	1327	N22	W68	.925		19.5	11	SN	1	C	1321	20		D
RAMY	24	1459	1501	1514	S12	W11	.347		23.8	15	SB	3	C		67		F
HUAN	24	1500		1507	S14	W03	.354		24.0	7	SF	1	C				E
RAMY	24	1532	1534	1540	S13	W42	.713		21.5	8	SN	3	C		29		
RAMY	24	1544	1545	1556	N 6	E19	.324		26.1	12	SN	3	C		34		
PALE	24	1814	1815	1832	N 6	E17	.291	16239	26.0	18	1B	3	C		210		DE
HOLL	24	1815	1816	1822	N 6	E16	.275		26.0	7	SB	3	C		97		UDE
HUAN	24	1815	1816	1820	N07	E17	.292		26.0	5	SN	1	C	1816	80		
HUAN	24	1817	1817	1823	N08	E25	.423		26.6	6	SF	1	C	1817	20	.2	D
PALE	24	1845	1846	1850	N 6	E17	.291		26.1	5	SN	3	C		25		
HOLL	24	1920	1924	2021D	N16	E28	.493		26.9	61D	SB	3	C		41		
HUAN	24	1924		1934	S32	E18	.655		26.2	10	SF	1	C				
PALE	24	1924	1925	1935	N18	E29	.517		27.0	11	SB	3	C		31		
HUAN	24	1924		1952	N18	E28	.503		26.9	28	SF	1	C	1927	30	.3	E
PALE	24	1925	1925	1930	S31	E18	.643		26.2	5	SN	3	C		29		
PALE	24	1939	1953	2002	N18	E29	.517		27.0	23	SF	3	C		37		
PALE	24	1939	1939	2002	N18	E29	.517		27.0	23	SN	3	C		25		
BIGB	24	1941	1944	2030D	N22	E40	.672		27.8	49D	SF	1	P	1944	100	1.3	G
BIGB	24	1949	1957	2009D	N16	E28	.493		26.9	20D	SN	1	P	1957	30	.4	
HOLL	24	2116	2120	2142	N 5	E16	.275		26.1	26	SB	3	C		63		U
PALE	24	2117	2121	2141D	N 6	E15	.258		26.0	24D	SB	3	C		45		FDE
BIGB	24	2118	2120	2148	N07	E16	.276		26.1	30	SN	1	C	2120	40	.4	
HOLL	24	2129	2155	2315	N17	E26	.471	16238	26.8	106	1B	3	C		436		U F
PALE	24	2135	2139	2143D	N17	E28	.498		27.0	8D	SN	3	C		80		DE
BIGB	24	2148	2153	2226D	N17	E28	.498		27.0	38D	SB	1	P	2153	80	.9	
PALE	24	2152E	2155U	2240	N18	E25	.463	16238	26.8	48D	1B	3	C		282		FDE
HOLL	24	2218	2218	2226	S26	W59	.907		20.5	8	SN	3	C		16		
HOLL	25	0019	0023	0036D	N 5	E14	.241		26.1	17D	SB	2	C		161		F
PALE	25	0025E	0027U	0051	N 7	E17	.292		26.3	26D	SB	3	C		113		FDE
BIGB	25	0026	0027	0107	N07	E15	.259		26.1	41	SN	1	C	0027	50	.5	
MANI	25	0028E	0028U	0050	N 5	E16	.275		26.2	22D	SN	3	V		80		F
HOLL	25	0029	0030	0036D	N17	E25	.457		26.9	7D	SN	2	C		40		
ISTA	25	0747		0835	N17	E22	.416	16238	27.0	48	1B		V				F
ISTA	25	0802		0806	S34	E03	.642		25.9	4	SN		V	0804			D
RAMY	25	1241	1248	1313	S15	W54	.840		21.5	32	SN	3	C		31		
HUAN	25	1352	1357	1414	N07	E08	.142		26.2	22	SN	2	C	1357	30	.3	E
HOLL	25	1353	1405	1438	N 5	E 6	.104		26.0	45	SB	3	C		160		F
RAMY	25	1354	1357	1412D	N 5	E 6	.104		26.0	19D	SB	3	C		49		
HUAN	25	1356	1358	1407	N17	E18	.362		26.9	11	SN	2	C	1358	80	.8	E
HOLL	25	1357	1400	1412	N17	E17	.348		26.9	15	SB	2	C		117		F
RAMY	25	1357	1359	1410	N17	E17	.348		26.9	13	SB	3	C		84		
HOLL	25	1403	1410	1445	S13	W68	.939		20.5	42	SN	3	C		44		
RAMY	25	1405	1410	1412D	S13	W70	.950		20.3	7D	SF	3	C		0		
HUAN	25	1408		1430	S15	W68	.942		20.5	22	SN	1	C	1415	25		D
HOLL	25	1507	1510	1514	N 5	E 6	.104		26.1	7	SB	3	C		25		
HUAN	25	1511		1536	S17	W55	.854		21.5	25	SN	1	C	1521	70	1.3	E
HOLL	25	1511	1512	1519D	S14	W56	.855		21.4	8D	SB	3	C		23		
BIGB	25	1511E	1522	1540D	S15	W54	.840		21.6	29D	SN	1	P	1522	90	1.6	G
HUAN	25	1534	1535	1550	N25	W85	.993		19.3	16	SN	2	C	1535	40		
HOLL	25	1537	1537	1552	N24	W82	.987		19.5	15	SN	3	C		32		
HUAN	25	1605		1609D	S32	E10	.621		26.4	4D	SN	1	P	1607	60	.3	E
HOLL	25	1606	1622	1652	S32	E 6	.611		26.1	46	SB	3	C		120		U
HOLL	25	1612	1612	1658	S24	W81	.994		19.6	46	SN	3	C		8		
HOLL	25	1617	1621	1702	S14	W56	.855	16231	21.5	45	1B	3	C		255		F
HOLL	25	1620	1622	1637	S13	W69	.945		20.5	17	SN	3	C		14		
BIGB	25	1620E	1623U	1642D	S33	E09	.632		26.4	22D	SN	1	P	1623	90	.9	
BIGB	25	1625E	1626D	1712D	S15	W55	.849	16231	21.6	47D	1N	1	P	1626	210	3.8	G
HOLL	25	1702	1704	1736	N 5	E 5	.087		26.1	34	SB	3	C		49		F
HOLL	25	1708	1709	1753	S26	W69	.960		20.5	45	SN	3	C		11		
HOLL	25	1716	1718	1726	S13	W70	.950		20.5	10	SN	3	C		32		
HOLL	25	1800	1801	1808	S32	E 5	.609		26.1	8	SB	3	C		61		
BIGB	25	1924	1926U	1930	S13	W70	.950		20.6	6	SN	2	C	1926	20		
HOLL	25	1943	2007	2145	N 5	W 1	.018	16239	25.7	122	1B	3	C		414		FDE
BIGB	25	1946E	1951E	2047	N05	E02	.035		26.0	61D	SB	2	P	1951	130	1.3	
PALE	25	1947	2014U	2121D	N 4	W 0	.021	16239	25.8	94D	1B	3	C		300		FDE
HUAN	25	2004E		2146D	N05	W02	.035	16239	25.7	102D	1N	2	P	2016	250	2.5	E
BIGB	25	2209	2211	2218	S14	W57	.864		21.6	9	SN	2	C	2211	60	1.1	
HOLL	25	2220	2227	2248	S19	E30	.618		28.2	28	SB	3	C		119		
BIGB	25	2221	2228	2251	S20	E30	.627		28.2	30	SB	2	C	2228	50	.6	
BIGB	25	2308	2311	2334	S13	W75	.973		20.3	26	SN	2	C	2311	40		G

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	26	0007	0010	0026	N17	E12	.285		26.9	19	SB	3	C	0010	60	.6	
MANI	26	0010E	0010U	0016D	N18	E14	.320		27.1	6D	SB	3	C		100		
BIGB	26	0138	0141	0144D	S15	W58	.874	16231	21.7	6D	1B	3	P	0141	120	2.3	G
MANI	26	0140E	0157U	0201D	S13	W57	.862	16231	21.8	21D	2B	3	C		250		F
ISTA	26	0651		0715	N04	E04	.073	16239	26.6	24	2N		V	0656			IF
BUCA	26	0652E		0659D	N04	E04	.073	16239	26.6	7D	1F		C	0653	214	2.2	
ISTA	26	0704		0709	S22	E26	.606		28.2	5	SF		V	0705			D
ISTA	26	0755		0804	S15	W90	1.000		19.6	9	SN		V				AD
ISTA	26	0802		0815	N06	W07	.122	16239	25.8	13	1N		V	0804			IF
RAMY	26	1125	1128	1149	N 5	W 6	.104		26.0	24	SN	3	C		36		
HUAN	26	1222E		1321	N04	W09	.158		25.8	59D	SN	2	P	1236	100	1.0	E
HOLL	26	1257E	1258U	1323	N 5	W 9	.156		25.9	26D	SB	2	C		120		U F
RAMY	26	1321	1321	1325	S14	W64	.916		21.8	4	SN	3	C		32		
HUAN	26	1350		1406	N04	W09	.158		25.9	16	SF	1	C	1353	45	.4	E
HOLL	26	1353	1353	1407	N 5	W 9	.156		25.9	14	SB	3	C		30		F
HUAN	26	1403	1407	1428	S22	E27	.616		28.6	25	SN	2	C	1407	45	.5	E
HOLL	26	1403	1409	1426	S21	E22	.560		28.2	23	SN	3	C		61		
RAMY	26	1423	1503	1555	N 5	W 8	.139		26.0	92	SB	3	C		47		F
HOLL	26	1445	1446	1453	N 5	W 7	.121		26.1	8	SB	3	C		28		
BIGB	26	1447	1450	1454	N17	E90	1.000		2.4	7	SN	3	C	1450	20		
HOLL	26	1512	1532	1548	N 5	W 8	.139		26.0	36	SB	3	C		41		F
RAMY	26	1615	1705U	1750D	N 5	W 9	.156	16239	26.0	95D	3B	3	C		763		Z U
HOLL	26	1617	1649	1652D	N 5	W 9	.156		26.0	35D	2B	3	V		514		U
HOLL	26	1617	1802	2203	N 5	W 9	.156		26.0	346	1B	3	C		475		Z U
HOLL	26	1617	1732	2203	N 5	W 9	.156		26.0	346	2B	3	C		991		Z U
RAMY	26	1639	1640	1645	N20	E75	.962		1.3	6	SF	3	C		0		
BIGB	26	1639	1701	2146D	N05	W12	.207	16239	25.8	307D	2B	3	P	1701	550	5.8	
HUAN	26	1646E		2101D	N05	W13	.224	16239	25.7	255D	2B	2	P	1658	530	5.6	E
PALE	26	1707E	1707U	2002D	N 5	W10	.173	16239	26.0	175D	2B	3	C		763		U F
BIGB	26	2049	2051	2107	N26	E05	.362		27.2	18	SN	3	C	2051	40	.4	G
PALE	27	0049E	0049U	0055	N 6	W12	.207		26.1	6D	SB	3	C		45		DE
MANI	27	0050E	0050U	0055	N05	W10	.173		26.3	5D	SF	3	V		40	.4	F
PALE	27	0055E	0055U	0104	N18	E75	.962		1.7	9D	SN	3	C		22		DE
ISTA	27	0719		0725	N10	W10	.190		26.6	6	SN		V				D
ISTA	27	0812		0830	N05	W20	.341		25.8	18	SN		V				E
RAMY	27	1230	1232	1240	S20	E 9	.452		28.2	10	SN	3	C		33		
RAMY	27	1343	1350	1359	N18	E65	.903		1.4	16	SN	3	C		14		
HUAN	27	1455E		1556	N03	W14	.245		26.6	61D	SF	1	P	1502	20	.2	D
HUAN	27	1541		1620	S28	E45	.816		31.0	39	SF	1	C				E
RAMY	27	1543	1608	1705	N 4	W24	.406		25.9	82	SB	3	C		48		
BIGB	27	1548	1550	1609	S29	E44	.814		31.0	21	SN	2	C	1550	20	.3	
BIGB	27	1602	1605	1627	N04	W04	.074		27.4	25	SN	2	C	1605	20	.2	
HOLL	27	1608	1609	1621	N 5	W22	.373		26.0	13	SB	3	C		25		
BIGB	27	1654	1655	1710	N03	W15	.261		26.6	16	SB	2	C	1655	10	.1	D
BIGB	27	1717	1719	1734	N03	W15	.261		26.6	17	SN	2	C	1719	10	.1	
BIGB	27	1809	1810	1813	N07	W18	.308		26.4	4	SN	2	C	1810	20	.2	
PALE	27	1829E	1845U	1930D	N 5	W23	.389		26.0	61D	SN	2	C		50		F
HUAN	27	1834		1911	N04	W24	.406		26.0	37	SN	1	C	1852	70	.7	E
RAMY	27	1835	1851	1939	N 6	W22	.373		26.1	64	SB	3	C		119		F
HOLL	27	1838	1850	1914	N 4	W23	.390		26.1	36	SB	3	C		90		F
BIGB	27	1849	1852	1936	N05	W23	.389		26.1	47	SB	2	C	1852	40	.4	
BIGB	27	1920	1922	1949	N05	W17	.291		26.5	29	SN	2	C	1922	30	.3	
HUAN	27	1920		1935	N04	W16	.276		26.6	15	SF	1	C				E
BIGB	27	2011	2012	2037	N05	W17	.291		26.6	26	SN	2	C	2012	40	.4	
RAMY	27	2012	2012	2023	N 4	W17	.292		26.6	11	SB	3	C		25		
HOLL	27	2048	2051	2058	S32	W22	.680		26.2	10	SN	3	C		23		F
HOLL	27	2137	2141	2315	N18	E69	.930	16252	2.1	98	1B	3	C		189		ZDE
RAMY	27	2137	2141	2149D	N18	E62	.881	16252	1.6	12D	1B	3	C		160		FDE
BIGB	27	2138	2148	2149D	N06	E60	.863	16255	1.4	11D	1B	2	P	2148	120	2.5	
HOLL	28	0028	0028	0031	N17	E63	.888		1.7	3	SN	3	C		17		
BIGB	28	0035	0040	0100	N05	W19	.324		26.6	25	SN	2	C	0040	40	.4	
PALE	28	0335E	0345U	0346	S27	E32	.705		30.5	11D	SN	3	C		29		DE
PALE	28	0336E	0337U	0345	N17	E61	.872		1.7	9D	SN	3	C		28		DE
BUCA	28	0615		0705	N05	W22	.373	16239	26.6	50	1N		C	0621	214	2.4	
ATHN	28	0759	0802	0823	N 5	W21	.357		26.8	24	SB	4	C		80		F
RAMY	28	1219	1230	1245	N18	E50	.770		1.3	26	SB	3	C		96		
RAMY	28	1222	1222	1313	N 4	W26	.438		26.6	51	SB	3	C		35		
RAMY	28	1301	1308	1408	N19	W23	.441	16238	26.8	67	1B	3	C		254		DE
RAMY	28	1335	1335	1341	N17	E54	.809		1.6	6	SN	3	C		14		F
HUAN	28	1351E		1402D	N18	W24	.447		26.8	11D	SF	1	P				E

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HUAN	28	1505	1509	1512	N02	W28	.472		26.5	7	SN	1	C	1509	20	.2	D
BIGB	28	1508	1519	1531	N03	W28	.470		26.5	23	SN	1	C	1519	20	.2	
RAMY	28	1508	1510	1543	N 6	W33	.542		26.2	35	SB	3	C		35		F
BIGB	28	1517	1518	1541	N21	E55	.824		1.8	24	SN	1	C	1518	20	.4	
BIGB	28	1518	1523	1547	N04	W37	.600		25.9	29	SN	1	C	1523	30	.4	
BIGB	28	1646	1647	1723	N03	W29	.485		26.5	37	SN	1	C	1647	10	.1	
RAMY	28	1647	1648	1655	N 6	W34	.557		26.1	8	SB	3	C		30		
HOLL	28	1659	1706	1739	N24	E53	.810		1.7	40	SB	3	C		118		
RAMY	28	1700	1741	1747	N 3	W29	.485		26.5	47	SN	3	C		22		F
BIGB	28	1703	1704U	1747	N24	E54	.819		1.8	44	SN	2	P	1704	50	.9	
RAMY	28	1704	1706	1721	N26	E53	.814		1.7	17	SB	3	C		46		
PALE	28	1706	1706	1721	N25	E54	.821		1.8	15	SN	3	C		32		DE
PALE	28	1722	1725	1750	N 4	W29	.484		26.5	28	SN	3	C		30		DE
BIGB	28	1725	1726	1758	N05	W29	.483		26.6	33	SN	2	C	1726	30	.4	
HOLL	28	1800	1806	1812	N17	E57	.838		2.0	12	SN	3	C		20		
PALE	28	1804	1850	2007D	N 5	W34	.557		26.2	123D	SF	3	C		22		FDE
PALE	28	1804	1818	2007D	N 5	W34	.557		26.2	123D	SN	3	C		20		FDE
RAMY	28	1806	1818	1829	N 6	W35	.571		26.1	23	SB	3	C		66		F
RAMY	28	1806	1808	1829	N 6	W35	.571		26.1	23	SF	3	C		19		F
BIGB	28	1807	1816	1836	N03	W30	.500		26.5	29	SN	2	C	1816	30	.4	
BIGB	28	1817	1818	1831	N08	W38	.613		25.9	14	SB	2	C	1818	30	.4	
HOLL	28	1834	1842	1909	S28	E24	.652		30.6	35	SB	3	C		97		
RAMY	28	1834	1842	1925	S27	E24	.642		30.6	51	SB	3	C		85		F
BIGB	28	1835	1842	1935	N28	E25	.541		30.6	60	SN	2	C	1842	120	1.4	
PALE	28	1849E	1849U	1912	S29	E23	.655		30.5	23D	SB	3	C		55		F
RAMY	28	1851	1851	1905	N 6	W35	.571		26.2	14	SB	3	C		22		F
HOLL	28	1851	1851	1859	N 4	W34	.558		26.2	8	SB	3	C		20		
HOLL	28	1910	1920	1951	N 4	W35	.572		26.2	41	SN	3	C		72		DE
HOLL	28	1910	1947	1951	N 4	W35	.572		26.2	41	SB	3	C		96		DE
RAMY	28	1911	1919	1926D	N 6	W36	.585		26.1	15D	SB	3	C		75		F
BIGB	28	1914	1922	1959	N04	W31	.514		26.5	45	SB	2	C	1922	60	.7	
BIGB	28	1945	1946	1951	N03	W30	.500		26.6	6	SB	2	C	1946	20	.2	E
HOLL	28	2040	2042	2103	S31	W37	.775		26.1	23	SN	3	C		21		
BIGB	28	2051	2052	2059	N07	W33	.542		26.4	8	SF	2	C	2052	20	.3	
BIGB	28	2113	2115	2129	N10	E73	.953		3.4	16	SN	2	C	2115	30		
BIGB	28	2134	2135	2146	N06	W32	.528		26.5	12	SB	2	C	2135	30	.4	
HOLL	28	2136	2136	2141	N 6	W32	.528		26.5	5	SB	3	C		33		F
PALE	28	2138E	2138U	2138D	N18	E65	.903		2.8		SB	2	C		45		FDE
HOLL	28	2151	2156	2251	N 4	W36	.586	16239	26.2	60	1B	3	C		277		U F
HOLL	28	2151	2236	2251	N 4	W36	.586		26.2	60	SB	3	C		70		U F
BIGB	28	2151	2157	2230	N06	W32	.528		26.5	39	SB	2	C	2157	70	.9	
HOLL	28	2153	2203	2224	S30	W36	.760		26.2	31	SN	3	C		36		DE
HOLL	28	2203	2224	2246	N19	E57	.839		2.2	43	SB	3	C		61		F
BIGB	28	2236	2237	2246	N07	W40	.640		25.9	10	SB	2	C	2237	30	.4	
HOLL	28	2358	0005	0015	N17	E63	.888		2.7	17	SB	3	C		33		
BIGB	29	0032	0033	0042	N10	E70	.936		3.3	10	SN	1	C	0033	20		
BIGB	29	0038	0041	0115	N19	W44	.706		25.7	37	SF	3	C	0041	40	.6	
BIGB	29	0100	0101	0114	N16	E57	.837		2.3	14	SB	1	C	0101	30	.6	
ISTA	29	0611		0622	N23	E90	.999		5.0	11	SF		V	0615			AD
ISTA	29	0617		0626	N19	E58	.848		2.6	9	SN		V	0619			EF
ISTA	29	0657		0712	S23	W01	.478		29.2	15	SN		V				FU
ISTA	29	0740		0817	N21	E90	.999	16263	5.1	37	2B		V	0745			AF
ISTA	29	0804		0813	N14	E90	1.000		5.1	9	SF		V				AD
WEND	29	1207		1209D	N19	W36	.609		26.8	20	SN		C	1209	75	1.0	
RAMY	29	1211	1211	1229	N18	W35	.593		26.9	18	SN	3	C		23		
BIGB	29	1430	1447	1451	N19	E70	.936		3.9	21	SN	3	C	1447	90		A
BIGB	29	1504	1519	1550	N19	E70	.936		3.9	46	SN	3	C	1519	100		
BIGB	29	1554	1558	1603	N19	E70	.936		3.9	9	SB	3	C	1558	50		
BIGB	29	1558	1559	1606	S15	E65	.924		3.5	8	SN	3	C	1559	30		
BIGB	29	1606	1609	1621	N19	E70	.936		3.9	15	SB	3	C	1609	60		
WEND	29	1651		1719	S28	E15	.595		30.8	28	SB		C	1656	113	1.4	F
BIGB	29	1653	1655	1721	S30	E15	.620		30.8	28	SB	3	C	1655	90	1.0	
PALE	29	1715E	1715U	1720	S27	E13	.572		30.7	50	SN	2	C		20		DE
BIGB	29	1721	1727	1736	S16	W90	1.000		23.0	15	SN	3	C	1727	30		
BIGB	29	1755	1800	1815	N19	E69	.930		3.9	20	SB	3	C	1800	60		
BIGB	29	1837	1840	1849	N19	E69	.930		4.0	12	SB	3	C	1840	70		
BIGB	29	1858	1859	1907	N19	E69	.930		4.0	9	SB	3	C	1859	40		

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	29	1915	1919	1932	N19	E69	.930		4.0	17	SB		C	1919	30		
BIGB	29	1925	1931	2013	N05	W44	.692		26.5	48	SN	3	C	1931	60	.9	
HUAN	29	1926E		1933D	N05	W45	.705		26.4	7D	SF	1	P				D
HOLL	29	1943	2011	2037	N23	E77	.970		4.6	54	SF	3	C		25		
BIGB	29	1951	1954	1959	N20	E85	.993		5.2	8	SB	3	C	1954	60		
BIGB	29	2008	2011	2049	N20	E85	.993		5.2	41	SB	3	C	2011	30		
BIGB	29	2023	2038	2106	N20	E65	.904		3.7	43	SB		C	2038	90		
BIGB	29	2224	2225	2235	S34	W64	.951		25.1	11	SN	3	C	2225	30	.7	
BIGB	29	2235	2238	2300	N20	E67	.917		4.0	25	SF	3	C	2238	30		
BIGB	29	2252	2253	2312	N05	W44	.692		26.7	20	SN	3	C	2253	60	.9	
PALE	29	2252	2253	2307	N 4	W51	.775		26.1	15	SB	3	C		66		DE
PALE	29	2252	2252	2305	S33	W48	.863	16241	26.4	13	1N	3	C		200		F
HOLL	29	2257E	2257U	2308	N 5	W52	.785		26.1	11D	SB	1	C		147		
BIGB	29	2311	2312	2314	S33	W65	.954		25.1	3	SN	3	C	2312	20		
PALE	30	0047E	0049U	0050D	N17	W42	.677		26.9	3D	SN	1	C		28		DE
HUAN	30	1443		1447D	N20	E70	.935		4.9	4D	SN	1	P	1447	40		T
HUAN	30	1516		1542	N20	E70	.935		4.9	26	SN	1	C	1518	30		
HUAN	30	1555		1630	N20	E70	.935		4.9	35	SN	1	C	1611	40		
WEND	30	1557E		1640D	N20	E69	.930	16254	4.8	43D	1B		C	1612	94		
HOLL	30	1657E	1812	1813D	N21	E62	.882		4.4	76D	1N	3	V		267		
PALE	30	1712	1800	1824	N21	E68	.924	16263	4.8	72	1B	3	C		151		DE
PALE	30	1712	1717	1824	N21	E68	.924		4.8	72	SF	3	C		56		DE
HOLL	30	1812E	1839	2016	N21	E65	.904	16263	4.6	124D	1N	3	C		188		
HOLL	30	1812E	1812	2001	N21	E65	.904	16263	4.6	109D	1N	3	C		267		
PALE	30	1839	1839	1908	N21	E67	.917		4.8	29	SB	3	C		119		DE
HUAN	30	2022		2042	N21	E65	.904		4.7	20	SN	1	C	2030	30		
HOLL	30	2023	2031	2044	N22	E66	.911		4.8	21	SN	3	C		23		
HOLL	30	2124	2136	2203	N 5	W62	.881		26.2	39	SB	3	C		81		
PALE	30	2132	2136	2142	N 4	W64	.897		26.1	10	SN	3	C		34		DE
PALE	30	2136	2136	2141	N21	E66	.911		4.9	5	SN	3	C		59		DE
HOLL	30	2325	2327	2341	N21	E64	.897		4.8	16	SB	3	C		14		
HOLL	30	2354	2359	0017	N22	E64	.897		4.8	23	SB	3	C		51		
BIGB	31	0000E	0001	0016	N20	E65	.903		4.9	16D	SN	3	P	0001	50		
HOLL	31	0026	0027	0033	N16	W54	.808		27.0	7	SN	3	C		25		U
MANI	31	0045	0048	0055	N20	E63	.889		4.8	10	SF	3	V		30	.6	
HOLL	31	0047	0050	0054	N21	E64	.897		4.8	7	SN	2	C		26		
PALE	31	0048E	0048U	0052D	N21	E64	.897		4.8	4D	SN	3	C		29		DE
WEND	31	0631		0657	N19	W58	.847		26.9	26	SN		C	0642	70	1.8	
ISTA	31	0648E		0657	N18	W59	.855		26.9	9D	SF		V				E
WEND	31	0659		0730	N07	W77	.972		25.5	31	SN		C	0705	50		D
ISTA	31	0703		0708	N07	W74	.959		25.7	5	SF		V				D
ISTA	31	0718		0725	N19	E60	.864		4.8	7	SF		V				D
WEND	31	0745	0759	0816	N20	E58	.848	16264	4.7	31	1N		C	0759	120	3.2	
WEND	31	0910E		0912D	N18	E56	.829		4.6	2D	SN		C	0910	50	1.0	D
HOLL	31	1340	1359	1408	N12	E59	.853		5.0	28	SB	3	C		95		F
HOLL	31	1409	1733	1801	N13	E59	.853		5.0	232	SB	3	C		84		
HOLL	31	1409	1436	1801	N13	E59	.853	16252	5.0	232	1B	3	C		166		
HUAN	31	1426		1435	N13	E59	.853		5.0	9	SF	1	C				
BIGB	31	1426	1439	1507	N11	E59	.853		5.0	41	SN	3	C	1439	50	1.0	
WEND	31	1431E		1548	N13	E62	.879		5.3	77D	SN		C	1450	90	2.0	T
HUAN	31	1449		1506	N13	E64	.894		5.4	17	SF	1	C	1457	20	.4	D
BIGB	31	1451	1456	1515	N12	E63	.887		5.3	24	SN	3	C	1456	20	.5	
HUAN	31	1522		1545	N11	E60	.862		5.1	23	SF	1	C				
BIGB	31	1524	1529	1650	N11	E60	.862		5.1	86	SN	3	C	1529	60	1.2	
BIGB	31	1701	1712	1722	N11	E59	.853		5.1	21	SN	3	C	1712	40	.8	
HUAN	31	1704		1721	N12	E58	.844		5.1	17	SF	1	C				
PALE	31	1708	1713	1728	N12	E55	.815		4.8	20	SN	3	C		46		FDE
BIGB	31	1732	1735	1837	N11	E59	.853		5.2	65	SB	3	C	1735	50	1.0	
BIGB	31	1758	1803	1823	S35	W70	.975		26.5	25	SN	3	C	1803	30		
HOLL	31	1802	1803	1824	N 2	W67	.920		26.7	22	SN	3	C		21		
BIGB	31	1803	1804	1816	S05	W70	.944		26.5	13	SN	3	C	1804	30		
BIGB	31	1805	1808	1839	N11	E59	.853		5.2	34	SN	3	C	1808	50	1.0	
BIGB	31	1806	1807	1816	N20	E56	.831		5.0	10	SB	3	C	1807	20	.4	
HOLL	31	1843	1847	1851	N16	W39	.637		28.9	8	SB	3	C		20		
BIGB	31	1843	1852	1905	S20	E90	1.001		7.5	22	SB	3	C	1852	40		
HOLL	31	1849	1851	1902	S19	E90	1.001		7.5	13	SN	3	C		0		
BIGB	31	1850	1855	2002	N11	E59	.853		5.2	72	SN	3	C	1855	50	1.0	
HOLL	31	1918	1919	1932	N 4	W73	.955		26.3	14	SB	3	C		38		
HOLL	31	1943	1944	1952	N 4	W73	.955		.3	9	SN	3	C		27		
BIGB	31	2013	2023	2115	N11	E58	.844		5.2	62	SN	3	C	2023	60	1.2	

Hα SOLAR FLARES

AUGUST 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	31	2016	2019	2036	N21	E53	.804		4.6	20	SB	3	C		64		DE
PALE	31	2018	2019	2026	N18	E51	.780		4.7	8	SN	3	C		35		
BIGB	31	2018	2020	2036	N19	E51	.781		4.7	18	SB	3	C	2020	30	.5	
HUAN	31	2020	2022	2028	N20	E52	.793		4.7	8	SN	2	C	2022	30	.4	E
BIGB	31	2110	2111	2122	N19	E51	.781		4.7	12	SN	3	C	2111	30	.5	
PALE	31	2111	2112	2113	N18	E51	.780		4.7	2	SN	3	C		17		FDE
HOLL	31	2231	2231	2258D	N22	E52	.796		4.8	270	SN	3	V		40		DE
HOLL	31	2231	2251	2307	N22	E52	.796		4.8	36	SB	3	C		110		DE
HOLL	31	2231	2231	2307	N22	E52	.796		4.8	36	SN	3	C				DE
BIGB	31	2237	2238	2241	N06	W78	.976		26.1	4	SN	3	C	2238	40		
BIGB	31	2245	2249	2302	N19	E58	.847		5.3	17	SN	3	C	2249	40	.8	
PALE	31	2247	2250	2252	N18	E50	.769		4.7	5	SN	3	C		67		DE
MANI	31	2250E	2250U	2255	N21	E53	.804		4.9	5D	SB	3	C		80		F

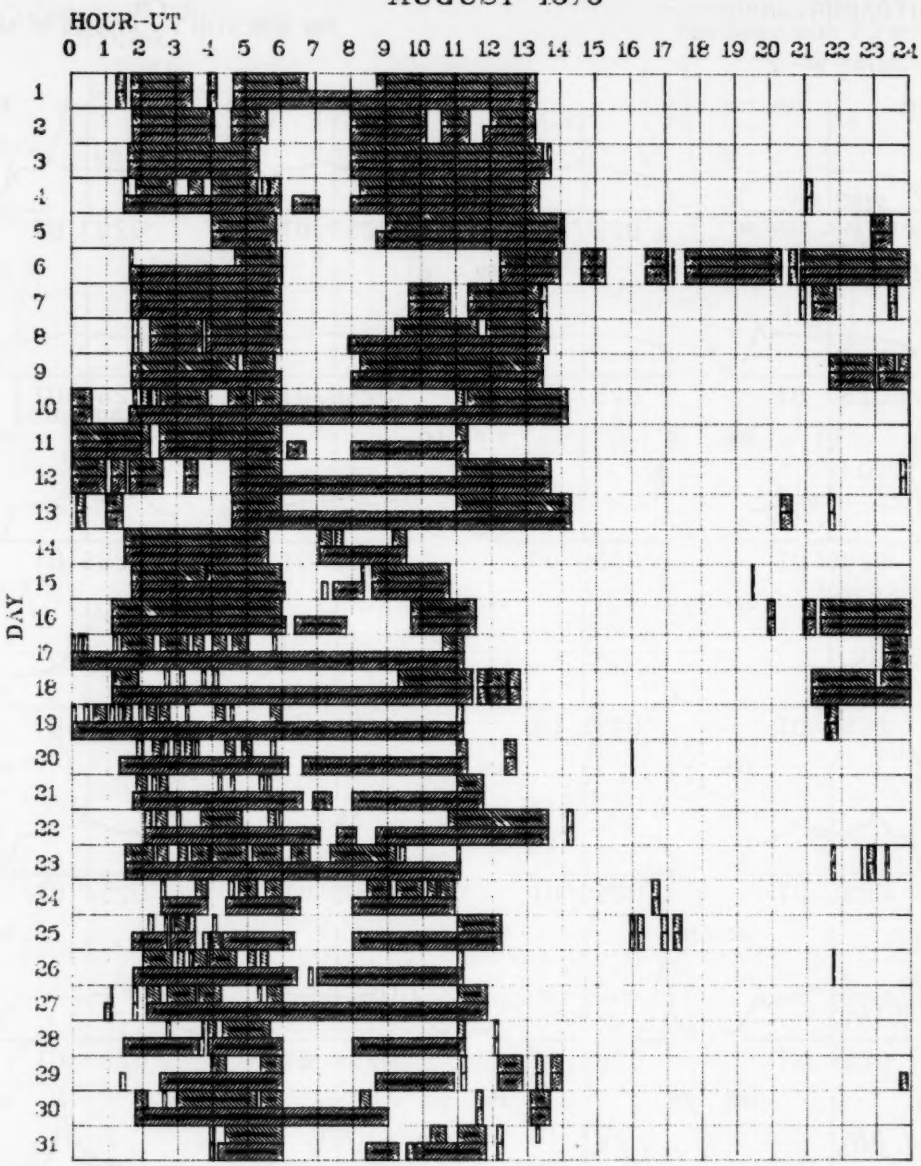
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

AUGUST 1979



Observatories included in total patrol:

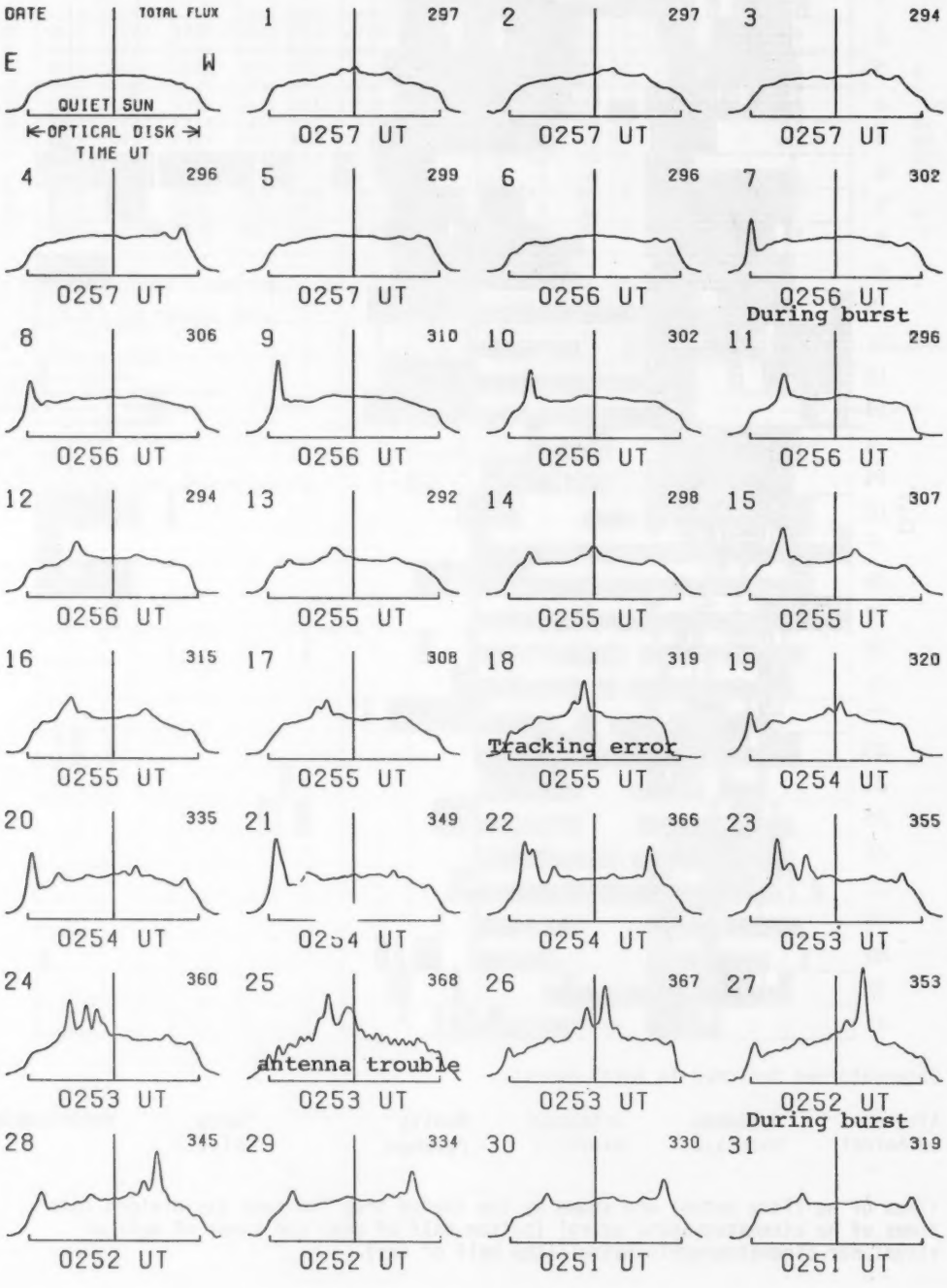
Athenes	Holloman	Istanboul	Manila	Ramey	Wendelstein
Bucharest	Huancayo	Kandilli	Palehua	Upice	

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

EAST-WEST SOLAR SCANS
AUGUST 1979

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

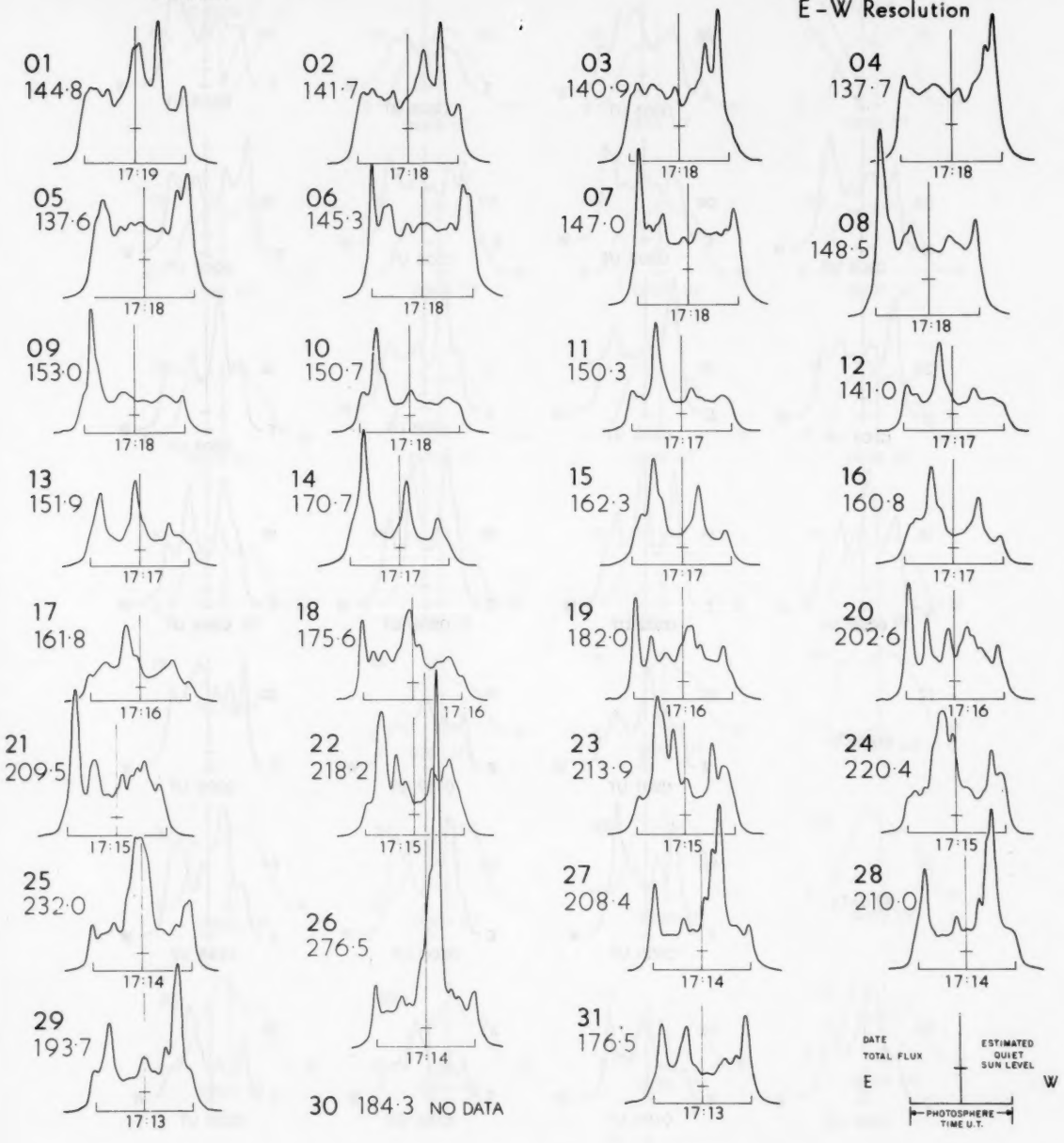


EAST-WEST SOLAR SCANS

AUGUST 1979

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

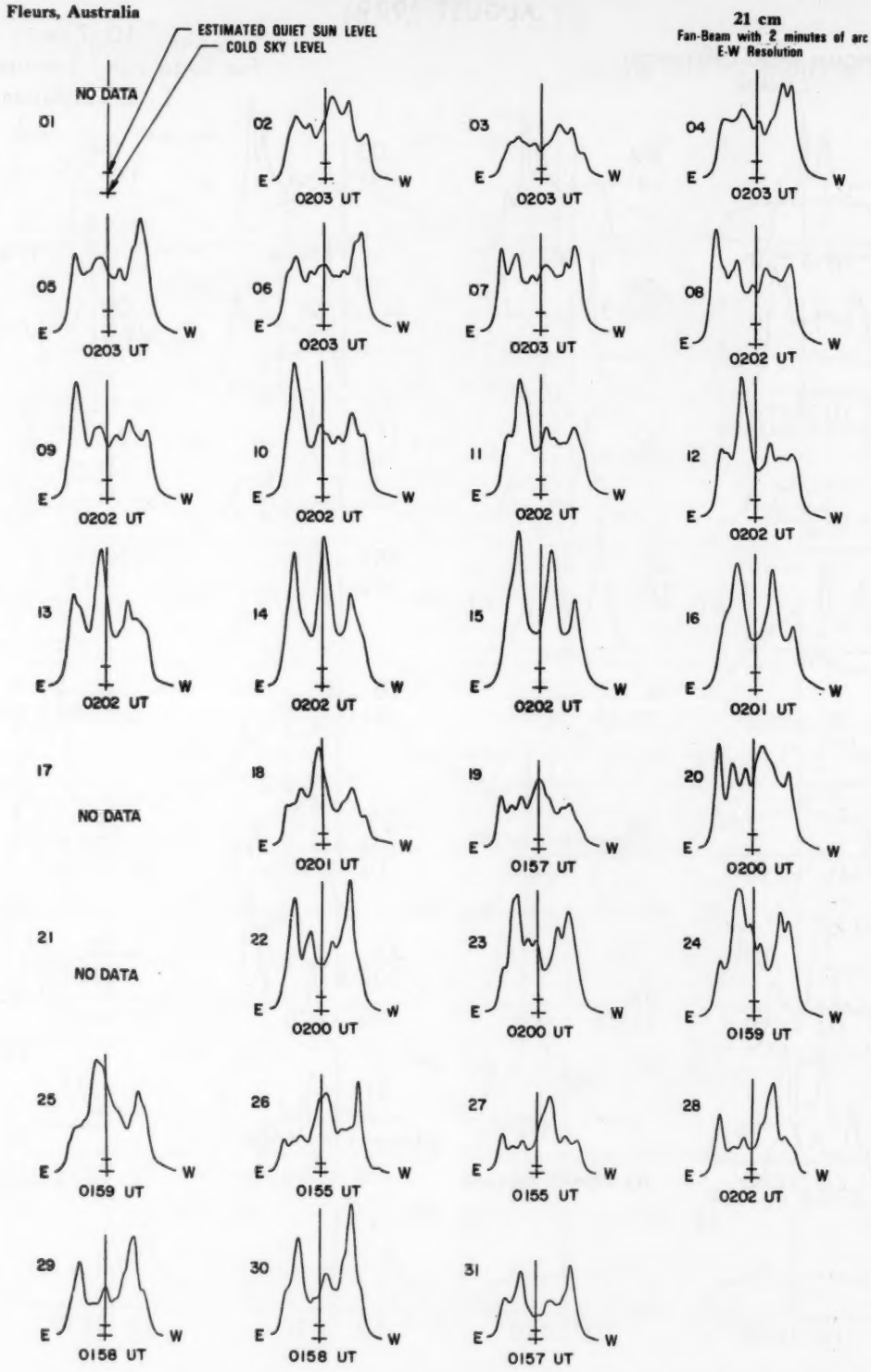


EAST-WEST SOLAR SCANS

AUGUST 1979

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

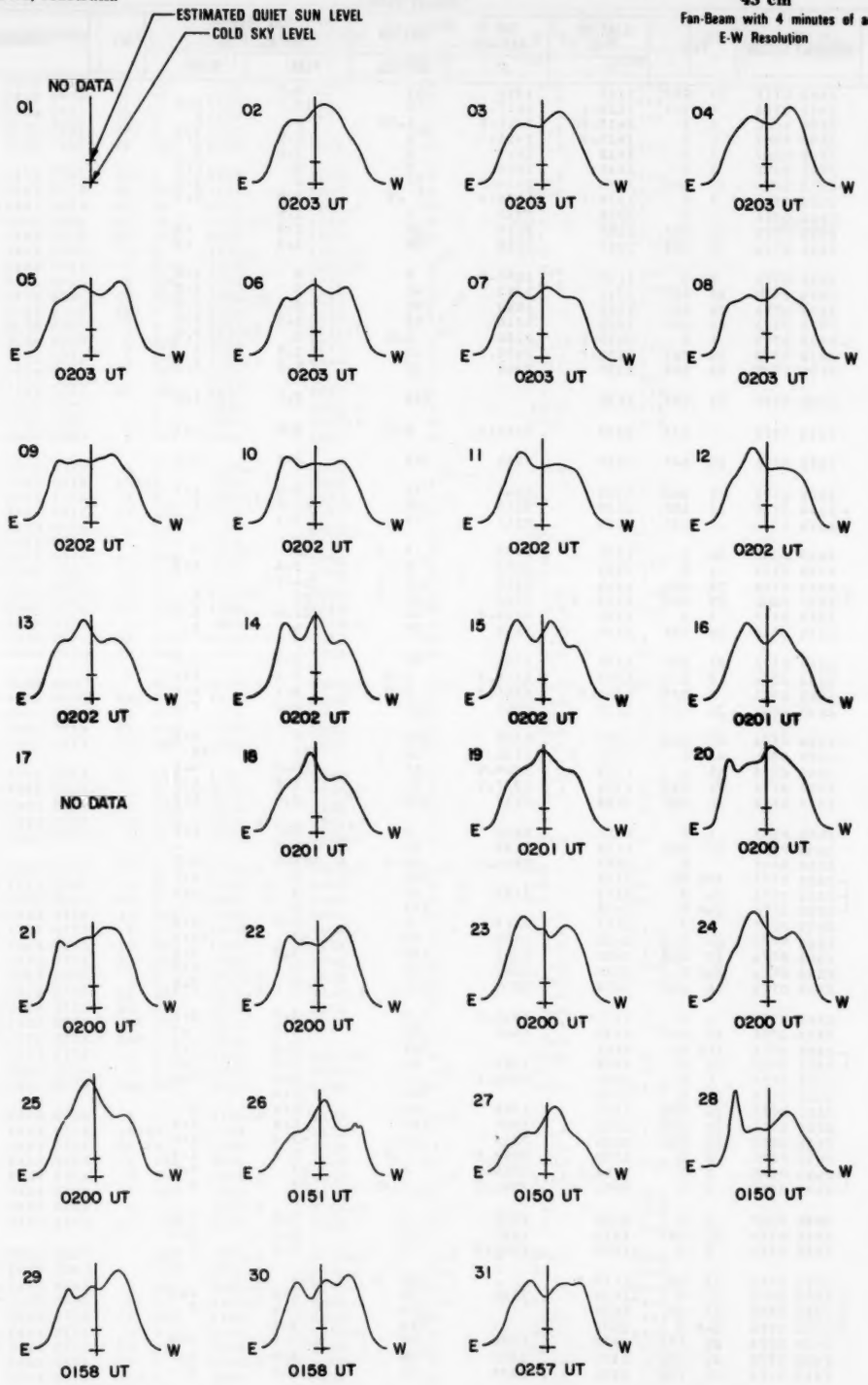


EAST-WEST SOLAR SCANS

AUGUST 1979

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
AUGUST 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	2800	OTTA	23 GRF	1114	1312	245	6.4			
	2800	OTTA	4 S/F	1116.1	1117.1	3	12.8	6.4		
	2695	BOUL	1 S	1410.5E	1411.5	1.5D	5	2		
	2695	PENT	1 S	1413.3	1413.9	1	6.6	3.3		
	2695	PENT	1 S	1418	1419	2	3.6	2		
	2800	OTTA	1 S	1647	1648	2	3	1.7		
	2800	OTTA	21 GRF	1755	1839.5	75	4	1.8		
	2800	OTTA	8 S	1838.1	1838.4	.5	5.8	2.9		
	2800	OTTA	1 S	2028	2030	7	1.6			
	2800	OTTA	20 GRF	2105	2115	35	1.8	.9		
	2800	OTTA	20 GRF	2215	2225	25	1.8	.9		
2	2800	OTTA	1 S	1149	1153.5	8	3	1.5		
	2800	OTTA	20 GRF	1311	1313	45	3	1.2		
	2800	OTTA	20 GRF	1520	1550	145	2.4	1.4		
	2800	OTTA	20 GRF	1805	1810	55	1.8	1.3		
	2800	OTTA	1 S	2105.2	2106	1.5	5	2.5		
	2800	OTTA	29 PBI	2106.7	2106.7	10	1.8	1		
	2695	PENT	20 GRF	2335	2345	30	6.2	3.1		
3	2800	OTTA	20 GRF	1430		120	2.4	1.4		
4	2800	OTTA	2 S/F	2020	2020.1	2.5	3.6	1.2		
5	2800	OTTA	20 GRF	2120	2235	260	6.2	3.1		
6	2800	OTTA	20 GRF	1938	1944	35	2.6	1.3		
	2800	OTTA	23 GRF	2109	2015	125	11.4	5		
	2800	OTTA	20 GRF	2138	2144	35	5.8	2.9		
7	2695	BOUL	46 C	1728 E	1730	5 D	15	5		
	2800	OTTA	1 S	1901	1902	6	2.6	1.3		
	2800	OTTA	23 GRF	1940	2055	360 D	14.4			
	2695	BOUL	20 GRF	1943 E	2002	34 D	25	8		
	2800	OTTA	3 S	1956	2000.8	11	21.4	8.6		
	2800	OTTA	20 GRF	2142	2148	30	6	3		
8	2800	OTTA	21 GRF	1737	1753	65	2.6	1.3		
	2800	OTTA	2 S/F	1738	1738.9	1.5	5.4	1.4		
	2800	OTTA	2 S/F	1740.5	1741.8	1.5	8.2	4.1		
	2695	PENT	20 GRF	2230	2315	140	4.2	2.1		
9	2800	OTTA	23 GRF	1625	1725	140	5	2.5		
	2695	BOUL	41 F	1727 E	1732.5	26 D	86	29		
	2800	OTTA	45 C	1739	1744.5	15	19.6	4.8		
	2800	OTTA	20 GRF	1934	1937.5	11	2.6	1.3		
	2800	OTTA	22 GRF	2100	2137	160	3.6	1.7		
10	2695	PENT	1 S	0013	0015	5	3.2	1.6		
	2695	PENT	22 GRF	0120	0135	40	4.2			
	8800	MANI	S	0903	0914.6	20.2	3 228.9	76.3		
	2800	OTTA	27A RF	1110		280	3	2.5		
	2800	OTTA	24 R	1110	1130	20	3	1.5		
	2800	OTTA	24P R	1130		180	3			
	2695	PENT	1 S	1411	1413	5	2.2	1.6		
	2800	OTTA	26 FAL	1430	1550	80	-3	-1.6		
	2800	OTTA	20 GRF	1600	1642	105	3.2	2.2		
	2800	OTTA	240 R	1835	1845	10	2	1.5		
	2800	OTTA	20 GRF	2015	2050	140	5	2.5		
11	2800	OTTA	1 S	1336	1336.5	2	3.2	1.2		
	2800	OTTA	20 GRF	1430	1445	55	1.8	.9		
	2800	OTTA	27A RF	1605		365	2.8	2.5		
	2800	OTTA	24 R	1605	1705	60	2.8	1.4		
	2800	OTTA	1 S	1656	1656.5	2	8.4	2.8		
	2800	OTTA	24P R	1705		290	2.8			
	2800	OTTA	20 GRF	1745	1750	40	1.6	1		
	2800	OTTA	20 GRF	1826	1945	135	2.8	1.4		
	2800	OTTA	26 FAL	2155	2210	15	-2.8	-1.4		
	2695	PENT	8 S	2252	2252.2	.5	2.8	1.4		
	2695	PENT	3 S	2350.3	2350.5	2	18	2.6		
	2695	BOUL	3 S	2351 E	2351.5	1.5D	10	3		
12	2695	PENT	1 S	0054	0055	3	4.6	1.5		
	2800	OTTA	22 GRF	1200	1230	110	2.6	1.3		
	2800	OTTA	1 S	1550	1550.2	1	2.2	1		
13	2800	OTTA	47 GB	1107.5		100 D	2200			
	2800	OTTA	24 R	1430	1500	30	2.6	1.3		
	2800	OTTA	27 RF	1430		270	2.6	2		
	2800	OTTA	24P R	1500		170	2.6			
	2800	OTTA	26 FAL	1750	1800	70	-2.6	-.9		
	2800	OTTA	20 GRF	1924	1930	30	1.6	1.2		
	2800	OTTA	20 GRF	2003	2008	40	1.4	1		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2800	OTTA	20 GRF	2120	2130	35	1.6	1.2		
	2800	OTTA	27 RF	2220		120	2.8	2.3		
	2800	OTTA	24 R	2220	2225	5	2.8	1.4		
	2695	PENT	24P R	2225		90	2.8			
	2695	PENT	26 FAL	2355	2410	15	-2.8	-1.4		
14	2695	PENT	240 R	0050	0100	10	2.8	1.4		
	2800	OTTA	28 PRE	1134	1232	68	53.6	34.7		
	2800	OTTA	47 GB	1242	1251.8	78	4030	1430		
	2695	BOUL	47 GB	1243.5U	1253	68 U	5224 U	1741		SUNRISE
	2800	OTTA	30 PBI	1400	1400	425	54	17.2		
	2800	OTTA	8 S	1543.4	1543.5	.6	535			
	2800	OTTA	2 S/F	1612	1612.3	3	3.4	1.7		
	2800	OTTA	4 S/F	1728.2	1730	3	10.8	5.4		
	2695	BOUL	42 SER	1858.5E	2002	113 D	46	15		
	2800	OTTA	40 F	2000	2001	1.5	60			
	2695	PENT	8 S	2011.5	2011.6	.2	6			
	2695	PENT	4 S/F	2013	2014	2	21.4	7.2		
	2800	OTTA	4 S/F	2048.5	2049	3	15.2	5		
	2800	OTTA	21 GRF	2120	2230	240	9	4.5		
	2800	OTTA	22 GRF	2147	2151	11	3	1.6		
	2695	MANI	S	2356	2357.3	3	1 43.9	14.6		
	2695	PENT	3 S	2356	2357.4	4	13.8	4.6		
	2695	PENT	2 S/F	2441	2442	3	3			
15	2800	OTTA	8 S	1136.7	1136.7	.1	9.4			
	2800	OTTA	240AR	1230	1340	10	3	1.5		
	2800	OTTA	8 S	1233.6	1233.7	.4	123			
	2800	OTTA	22 GRF	1313	1318	15	3	1.5		
	2800	OTTA	4 S/F	1357	1559.5	3	30	15		
	2800	OTTA	4 S/F	1528.1	1529	5	32	14		
	2800	OTTA	21 GRF	1528	1540	50	3	1.5		
	2695	BOUL	4 S/F	1529 E	1530	3 D	26	9		
	2800	OTTA	1 S	1541.5	1542	1	1.8	.9		
	2800	OTTA	20 GRF	1700	1718	75	2.4	1.3		
	2800	OTTA	1 S	1828	1828.8	2	2.2			
	2695	PENT	20 GRF	2005	2013	15	2.2	1		
	2800	OTTA	20 GRF	2115	2210	120	5.4	3		
16	2695	MANI	S	0455.3	0456.4	5.1	3 140.5	46.8		
	2800	OTTA	240 R	1135	1140	5	2.8	1.4		
	2800	OTTA	20 GRF	1154	1215	155	6.8	3.4		
	2800	OTTA	20 GRF	1525	1530	20	2.4	1.4		
	2800	OTTA	20 GRF	1620	1630	20	2.4	1.2		
17	2800	OTTA	20 GRF	1750	1930	160	3.6	1.8		
	2800	OTTA	1 S	2200	2203.8	6	9.8	4.9		
	2800	OTTA	30 PBI	2206	2206	55	4	2		
	2800	OTTA	2 S/F	2219.2	2221.7	6	3			
	2695	PENT	1 S	2334	2334.2	1	7.4	4		
18	2800	OTTA	46F C	1345.5	1423.5	64.5	490	163		
	2695	BOUL	4 S	1347 E	1349	8 D	119	39		
	2695	BOUL	45 C	1402 E	1425	45 D	335	112		
	2800	OTTA	30 PBI	1450	1450	70	4.6			
	2800	OTTA	3 S	1453.5	1454.1	1.5	23.2	11.6		
	2800	OTTA	29 PBI	1455	1455	8	5.4	1.8		
	2800	OTTA	23 GRF	1730	1740.5	90	5.6	2.8		
	2800	OTTA	1 S	1824.8	1825	1	1.4	.7		
	2800	OTTA	22 GRF	1845.7	1847.3	25	2.6			
	2800	OTTA	24 R	1915	1930	15	3.4	1		
	2800	OTTA	27A RF	1915		155	3.4	2.7		
	2800	OTTA	24P R	1930		90	3.4			
	2800	OTTA	3 S	2030	2031.6	4	12.6	6		
	2800	OTTA	3 S	2035	2035.3	1.5	12	4		
	2800	OTTA	26F FAL	2100	2150	50	-3.4	-1.7		
19	2800	OTTA	1 S	1128.5	1129	1.5	3.6	1.8		
	2800	OTTA	240AR	1128	1130	2	2.4	1.2		
	2800	OTTA	240FR	1253	1306	13	3.6			
	2800	OTTA	21 GRF	1536	1540	14	5.4	2.5		
	2800	OTTA	8 S	1538.9	1539	.2	10.8			
	2800	OTTA	23 GRF	2020	2137	160	4.4	2.4		
	2800	OTTA	1 S	2127.8	2128.2	3.5	8	3.8		
	2800	OTTA	20 GRF	2153	2200	17	3	1.8		
20	8800	MANI	S/F	0721.1	0722.2	2.2	4 295.2	98.4		
	2695	MANI	S/F	0721.1	0722.3	5.4	4 52	17.3		
	8800	MANI	4 GB	0905.5	0924.3	41.7	7 2804.4	934.8		
	2695	MANI	4 GB	0908.5	0924.3	37.4	7 520	173.3		
	2800	OTTA	21 GRF	1140	1248	215	8.4	4.2		
	2800	OTTA	3 S	1141	1142.4	4	38.6	16.6		
	2800	OTTA	29 PBI	1145	1145	21	11	5.5		
	2800	OTTA	1 S	1258.5	1259	4	4.8	2.4		
	2800	OTTA	240 R	1620	1630	10	3.6	1.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2800	OTTA	20 GRF	1640		100	5.4			
	2800	OTTA	24 R	1835	1855	20	2.6	1.3		
	2800	OTTA	27 RF	1835		115	2.6	2		
	2800	OTTA	24P R	1855		65	2.6			
	2800	OTTA	26 FAL	2000	2030	30	-2.6	-1.3		
	2800	OTTA	21 GRF	2105	2210	145	5.8	2.9		
	2800	OTTA	2 S/F	2109.5	2111.5	4	8.8	4.4		
	2800	OTTA	2 S/F	2231.2	2232	2	3.6	2		
21	2695	MANI	S	0611.5	0614.5	3.5	3 25.9	8.6		
	2800	OTTA	21 GRF	1320	1342	110	5.8	2.9		
	2800	OTTA	1 S	1331.3	1331.8	1	2.8	1.4		
	2800	OTTA	2 S/F	1356	1358	3	3.6	1.6		
	2695	PENT	1 S	1410	1411	2	5.2			
	2695	PENT	2 S/F	1416	1417.5	3	2	.9		
	2800	OTTA	1 S	1548.5	1549.5	3	4.8	2.4		
	2800	OTTA	21 GRF	1640	1657	100	10.2	3.4		
	2800	OTTA	4 S/F	1751	1752	6	14.6	5		
	2800	OTTA	21 GRF	1840	1930	90	3	1.5		
	2800	OTTA	1 S	1858.2	1859	2	7.6	3.8		
	2695	PENT	21 GRF	2120	2410	230 D	20.6			
	2695	PENT	20 GRF	2244	2251.5	11	7	3.4		
22	2800	OTTA	21 GRF	1120	1138	105	11	5.5		
	2800	OTTA	1 S	1133	1134	2	3	1.5		
	2800	OTTA	240 R	1317	1350	33	5.4	3		
	2800	OTTA	20 GRF	1525	1550	95	3.6	1.8		
	2800	OTTA	21 GRF	1845	2200	375	8.4			
	2800	OTTA	4 S/F	1854	1858.3	12	15.8	5.4		
	2695	PENT	45 C	2343	2350	11	36	7.2		
23	2800	OTTA	20 GRF	1211	1213	20	10.6	3.6		
	2695	BOUL	45 C	1235 U	1301	34 U	143	48		SUNRISE
	2800	OTTA	46F C	1243	1300	27	124	45.6		
	2800	OTTA		1243	1252	14	114			
	2800	OTTA		1257	1300	13	124			
	2800	OTTA	30 PBI	1310	1310	230	19.8	7.4		
	2800	OTTA	3 S	1318	1318.5	1.5	12.8	4.2		
	2800	OTTA	3 S	1506	1508.5	6	32	10.6		
	2695	BOUL	3 S	1508 E	1509	4	14	5		
	2800	OTTA	29 PBI	1512	1512	10	4.4	2.2		
	2800	OTTA	22 GRF	1830	1850	150	6.6	3.3		
	2695	PENT	21 GRF	2300	2322	70	11.8	5.6		
	2695	PENT	1 S	2304	2306	4	3.6	1.8		
24	2695	PENT	20 GRF	0015	0020	50 D	5.2			
	2800	OTTA	45 C	1154	1201	26	36.6	22		
	2800	OTTA	29 PBI	1220	1220	90	17.4	8.7		
	2800	OTTA	20 GRF	1435	1507	50	5.6	1.9		
	2800	OTTA	240 R	1600	1635	35	4	2		
	2800	OTTA	1 S	1636	1637.5	4	2.4	1.2		
	2800	OTTA	1 S	1738	1739	4	8	6		
	2800	OTTA	29 PBI	1742	1742	10	4	1.4		
	2800	OTTA	2 S/F	1814	1814.7	3	6.4	3.2		
	2800	OTTA	29 PBI	1817	1817	20	2.4	1.2		
	2800	OTTA	240 R	1900	1925	25	4	2		
	2800	OTTA	22 GRF	1940	1950	45	2.8			
	2800	OTTA	20 GRF	2035	2117	65	4.8	2.8		
	2800	OTTA	21 GRF	2151	2210	120	7	3.5		
	2800	OTTA	3 S	2152.3	2152.7	1.5	11.4	3.8		
25	2800	OTTA	240 R	1210	1240	30	6	3		
	2800	OTTA	3 S	1509	1511.7	5	24	12		
	2800	OTTA	30 PBI	1514	1514	25	6.4	3.2		
	2800	OTTA	1 S	1534	1534.5	1	4	2		
	2800	OTTA	21 GRF	1610	1620	100	10.4	4.8		
	2800	OTTA	20 GRF	1700	1702	30	8.4	4.2		
	2800	OTTA	21 GRF	1900	2055	240	12	6		
	2800	OTTA	4 S/F	1943	1959.5	25	85	28.4		
	2695	BOUL	3 S	1959 E	2001	5.5D	100	30		
	2800	OTTA	29 PBI	2008	2008	30	8	4		
	2695	PENT	3 S	2313.3	2313.7	1	22	11		
26	2695	PENT	3 S	0009.9	0010.3	5	15	5		
	2800	OTTA	21 GRF	1215	1240	100	4	1.4		
	2800	OTTA	8 S	1232	1232.1	.5	2.4	1.2		
	2800	OTTA	21 GRF	1358	1445	100	5.2	2.6		
	2800	OTTA	1 S	1445	1445.3	1.5	5.2	2.4		
	2800	OTTA	46F C	1640	1647	60	400	115		
	2695	BOUL	45 C	1641 E	1648	40 D	362	121		
	2800	OTTA	30 PBI	1740	1740	240	36	24		
	2800	OTTA	3 S	1753	1802	38	285	97		
	2695	BOUL	3 S	1754.5E	1803	31 D	222	74		
	2800	OTTA	22 GRF	1849	1857	13	6.6	3.2		
27	2800	OTTA	8 S	1809.8	1809.9	.4	11.4	5.7		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2800	OTTA	24 R	1830	1845	15	4	2		
	2800	OTTA	27A RF	1830		170	4	3		
	2800	OTTA	24P R	1845		90	4			
	2800	OTTA	2 S/F	1849.5	1849.8	1	5.6	1.9		
	2800	OTTA	26 FAL	2015	2120	65	-4	-2		
	2800	OTTA	22 GRF	2135	2200	85	7.6	3.8		
28	2800	OTTA	23 GRF	1215	1313	160	12	5.9		
	2800	OTTA	2 S/F	1227	1227.5	1.5	8.2	4.1		
	2800	OTTA	4 S/F	1304	1308	7	29	10		
	2800	OTTA	27A RF	1500		300	4	3.7		
	2800	OTTA	24 R	1500	1515	15	4	2		
	2800	OTTA	24P R	1515		260	4			
	2800	OTTA	1 S	1517	1518	2	4.4	2.2		
	2800	OTTA	4 S/F	1816.5	1817.9	6	13.4	4.5		
	2800	OTTA	20 GRF	1830	1850	35	4	2.4		
	2800	OTTA	20 GRF	1910	1918.5	22	6.4	3.2		
	2800	OTTA	26 FAL	1935	2000	25	-4	-2		
	2800	OTTA	1 S	2135	2135.7	1.5	3.2	1.5		
	2800	OTTA	3 S	2152	2152.7	4	17.2	5.8		
	2800	OTTA	29 PBI	2156	2156	25	4.8	2.4		
	2800	OTTA	40 F	2235	2236.8	3	78			
	2695	BOUL	4 S/F	2238	2239	3 D	49	16		
29	2800	OTTA	27 RF	1140		140	3.6	3.1		
	2800	OTTA	24 R	1140	1200	20	3.6	1.8		
	2800	OTTA	24P R	1200		100	3.6			
	2800	OTTA	26 FAL	1340	1400	20	-3.6	-1.8		
	2800	OTTA	27AFRF	1438		367	3.2	3		
	2800	OTTA	24 R	1438	1450	12	3.2	1.6		
	2800	OTTA	24P R	1450		330	3.2			
	2800	OTTA	8 S	1654.2	1654.2	.1	7.2			
	2800	OTTA	20 GRF	1925	1933	35	2.4	1.2		
	2800	OTTA	26 FAL	2020	2045	25	-3.2	-1.6		
	2695	PENT	21 GRF	2250	2255	20	3.4	2.6		
	2695	PENT	40 F	2252	2252	3	11.8			
	2695	PENT	20 GRF	2350	2500	100 D	7.6			
30	2800	OTTA	20 GRF	1435	1445	25	2.2	1.1		
	2800	OTTA	22 GRF	1505	1530	70	3	1.5		
	2800	OTTA	20 GRF	2120	2123	30	3.6	2.8		
31	2800	OTTA	20 GRF	1243	1303	50	3	2.4		
	2800	OTTA	20 GRF	1840	1847	12	2.2	1.4		

Observatories:

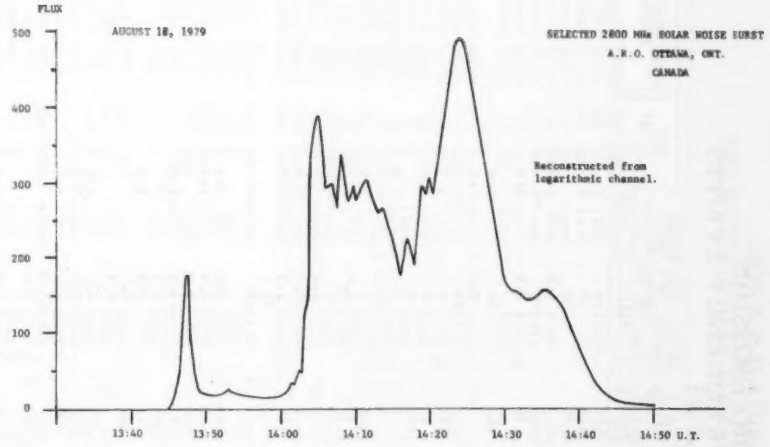
BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

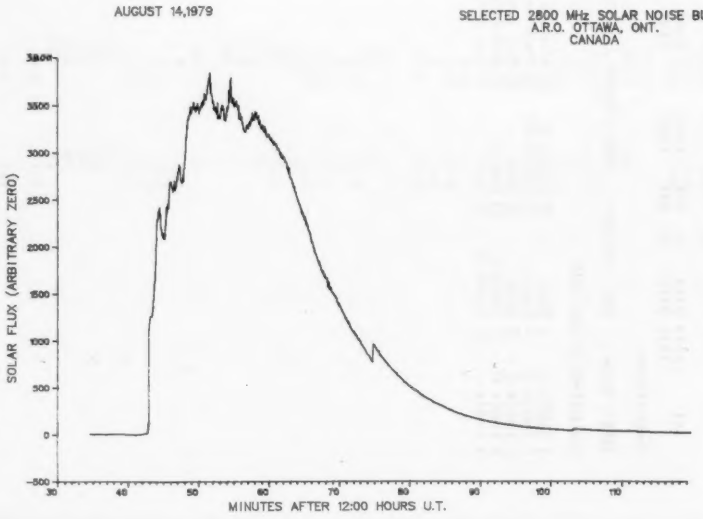
Explanation of Type Code:

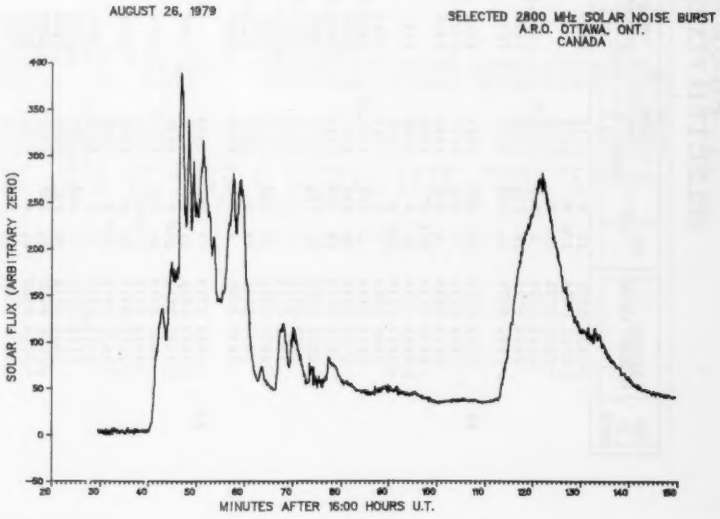
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

AUGUST 1979







PIONEER XII

AUGUST 1979

DATE Aug '79	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H^+} (x10^6°K)
1	1147	164.	428.	22.3	0.203
2	1117		573.	5.3	.436
3	1212		473.	6.8	.13
4	1220		837.	26.3	.519
5	1310		618.	4.8	.282
6	0855		495.	5.4	.078
7	0521		419.	6.6	----
8	1524		323.	13.2	.032
9	1006		318.	26.1	.048
10	1022		313.	56.4	.047
11	1129		471.	41.9	.721
12	0653		562.	8.8	.117
13	0000		528.	12.9	.279
14	2207		597.	4.4	.102
15	2358	173.	459.	----	----
16	0007		----	10.8	----
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30		176.			
31					

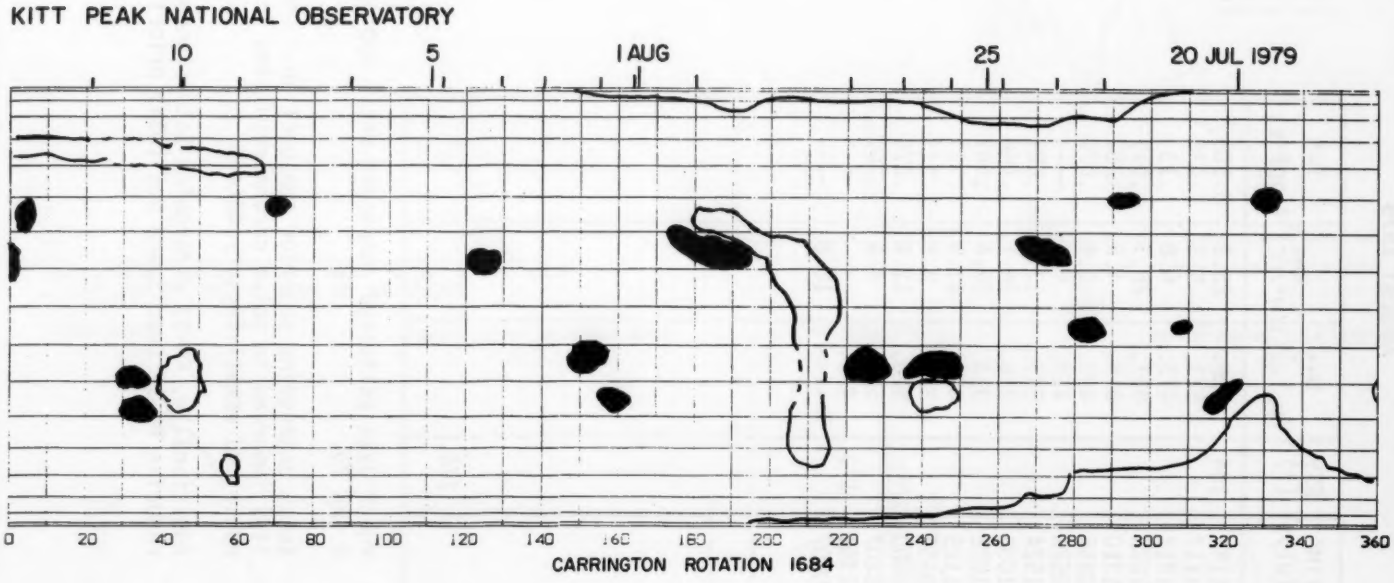
NOTE: PN-12 data estimated suspended until approximately 9 Sep 79.

Venus undergoing superior conjunction. Communication link immersed in solar corona resulting in somewhat noisy and unsatisfactory data.

Additionally, PN-11 undergoing Saturn encounter thus reducing PN-12 Deep Space Net (DSN) priority.

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1684



CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

AUGUST 1979

Big Bear Solar Observatory

During the month of August, we made a total of five D_3 scan observations and no holes were observed. The five days we observed were August 10, 13, 25, 27 and 31.

INFERRED IP MAGNETIC FIELD

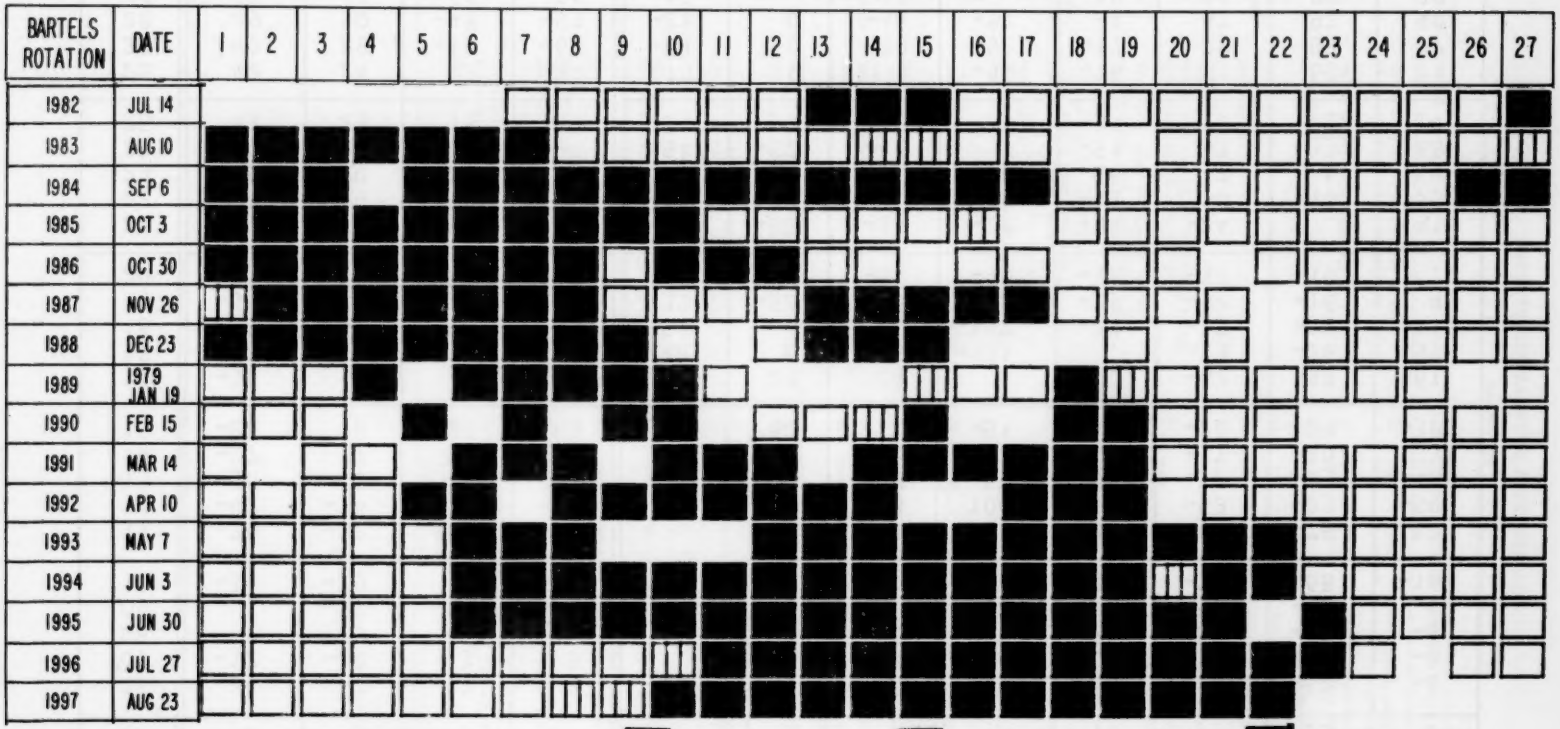
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1981	JUN 22	TA					A*					–	TA	TA		AT			*				*	AT	AT	–		AT	
1982	JUL 19									TA							–	–		TA				AT	AT	*		TA	
1983	AUG 15					TA			AT		AT	AT		AT	TA						A*						TA	
1984	SEP 11			TA		AT				TA	T*						A*			–			–			A*	TA	–
1985	OCT 8		* TA		T*		AT				–	–	–						TA	TA	–			–				
1986	NOV 4		–				–	AT	–	–	–	–						*	AT		–		AT	AT	AT	AT			
1987	DEC 1	AT	AT	–				–		–	–	TA	–	–	AT	–	AT	–	TA	–	A*	–			*		–	AT	–	–
1988	DEC 28		–	–	–	–			–	AT	*		TA	TA	T*		–	AT	–	–	TA			–	TA	–			TA		–
1989	1979 JAN 24		–			*		TA			TA		TA								*					–		AT		
1990	FEB 20		TA		–	TA	–		TA		–	TA	–	TA		TA	A*		TA	A*					A*					
1991	MAR 19			AT			AT		T*					*	–	–	–	–	TA	–	AT		T*	TA	TA	–	A*	–		TA	A*
1992	APR 15		A*	TA	T*	AT		TA	TA		T*						TA	*		–	AT	–	TA				A*		–	TA	
1993	MAY 12									–	–		AT			*		TA			AT	AT						–	–	–	–
1994	JUN 8	TA	TA	A*		TA					–	AT		–						T*	–	TA		TA	T*		AT	T*	–	TA	
1995	JUL 5	TA	TA	AT			TA	AT	A*	TA	TA	–		TA		AT					*			TA	T*					TA
1996	AUG 1			AT	A*	–			TA	–	–	–	T*	–			*	–			AT						AT	*			
1997	AUG 28			–	A*																									

▒ = definitely towards the sun ▯ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible – = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1978				1979							
DAY	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.
01	26	-11	-18	-72	11	.	-36	-4	26	41	97	24
02	32	-20	-21	-39	.	-1	.	16	13	82	86	21
03	15	-14	-36	-7	15	30	.	57	6	137	70	6
04	18	-8	-28	17	-6	27	-24	44	10	115	35	4
05	2	-3	-19	19	-25	-13	-6	11	45	104	-33	2
06	-24	-7	-12	9	-26	1	46	9	68	78	-61	-6
07	-12	-20	3	5	.	50	64	14	101	15	-81	-8
08	-7	-29	-6	-15	.	88	56	67	134	-27	-80	-8
09	.	-37	-17	-26	.	59	.	102	126	-50	-70	-6
10	-35	-29	-3	-37	27	39	.	124	75	-76	-68	-16
11	-34	-32	5	-19	.	40	21	138	31	-82	-75	-43
12	-42	-14	9	-16	27	30	63	100	-13	-52	-23	-59
13	-36	2	.	13	.	.	100	51	-66	-52	-23	-46
14	-27	7	16	31	45	78	106	-12	-104	-37	-20	-33
15	-26	8	20	43	21	62	.	-51	.	-28	-24	-38
16	-36	9	.	65	36	27	24	.	.	-42	-30	-61
17	-48	5	34	.	48	6	45	-121	.	-43	-26	-57
18	-44	-1	42	59	59	.	.	-117	-27	-35	-32	-41
19	-50	.	.	30	37	-52	-56	-72	-29	-32	-16	4
20	-33	4	55	18	18	.	-81	-40	-36	-37	-10	.
21	-21	3	35	32	9	-86	-81	-27	-34	-24	.	41
22	-14	19	40	27	-15	.	.	-32	-43	0	-16	55
23	5	20	28	-3	.	-80	-51	-40	-56	-7	6	58
24	31	25	27	-20	-54	-52	-41	.	-51	-7	33	68
25	43	23	18	-26	-64	.	-28	.	-30	10	58	74
26	42	24	2	-32	-70	19	.	-99	-16	17	69	77
27	40	29	-17	-63	-64	10	-29	-92	-17	29	83	47
28	29	30	-48	-51	-27	0	-36	-57	-4	47	92	40
29	15	17	-61	-36	12		-12	.	19	64	90	32
30	2	-3	-65	-22	.		-26	3	10	93	82	1
31		-16		-21	.		-28		9		53	-1

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

AUGUST 1979

DATE	ONSET TIME	DIRECTION	COMMENTS
01			SSC at 1145 UT. Field active balance of day, no distinctive SS activity.
02	0520	East	1st of double onset, weak SS
	0545	East	2nd of double onset, moderate SS
	0825	West	Strong SS
	1550		Slow onset.
03	0310	East	
	0620	East	Weak SS
	0735	≈ center	Moderate SS.
	0950	West	Moderate SS.
04	0415	East	Moderate SS.
	0810	West	Moderate SS.
	1155	West	Moderate SS, series of injections follow with final recovery at 1520 UT.
05	0350	East	Slow, weak onset followed by series of injections with final recovery at 0620 UT.
06			Field active through 1700 UT
	0730	≈ center	1st of double onset, moderate SS.
	0800	≈ center	2nd of double onset, moderate SS.
	0940	West	
	1030	West	Moderate SS.
	1230		SS response mainly along oval stations.
07	0725	West	
	1100	West	
08	0500	East	
	0650	West	
	1140	West	Weak SS
09	0520	East	1st of double onset.
	0540	≈ center	2nd of double onset.
	0640	West	Weak SS
	1100	West	Weak SS
	1205	West	
	1535		Slow onset
10	0500	East	Slow onset
	1230	West	
11			Weak SSC at 1813 UT. Weak ring current 2000 UT to 12/0300 UT. No distinctive SS activity during this period.
12	0945	West	Slow positive increase, beginning at 1850 UT in the H-component at mid and low latitude stations. Field active balance of UT day.
13			Negative impulse H-component mid and low latitude stations at 0610 UT followed by magstorm conditions with final recovery 14/0300 UT.
	1050		Onset of very strong SS having several injections, with final recovery at 1445 UT.
14			Field slightly unsettled, no distinctive SS activity.
15	0545	East	Weak SS.
16	0550	East	Slow onset, weak SS.
	0630	≈ center	Weak SS.
17	0810	West	1st of double onset, weak SS.
	0825	West	2nd of double onset, weak SS.
18			2030 UT; gradual onset to minor magstorm.
19			Minor magstorm conditions.
20			Positive impulse H-component mid and low latitude stations at 0622 UT.
	1630		Onset of very strong SS having several injections, with recovery near 1900 UT.
21			Magstorm conditions through 1030 UT.
	0215	East	Onset of strong SS with multiple injections.
	0550	East	Strong SS.
	0850	West	Strong SS.
22	0415	East	1st of multiple onset.
	0445	East	2nd of Multiple onset.
	0510	East	3rd of multiple onset.
	0610	≈ center	4th of multiple onset.
	0640	≈ center	5th of multiple onset.
	0835	West	
	1025	West	
23			Quiet day.
24	0840	West	
	1540		Small positive impulse H-component of low latitude Pacific Island stations. Variable SS activity follows in Alaskan Chain.
	1620		Moderate SS; Normal Wells to Cape Parry to Arctic Village.
	1940		Strong SS; Sachs Harbour to Johnson Point.
25	0725		Onset of multiple injections SS activity along Auroral oval with recovery near 1500 UT.
	1055		Very strong injection vicinity College - Talkeetna.
	1710		Onset of active conditions mid and low latitude stations and storm conditions Cape Parry northward in Polar cap. Only minor pertubations along the Auroral oval.
26	0700	≈ center	
	1255	West	
27	0340	East	
	0440	East	
	0625	West	SS onset with multiple injections.
	0925	West	SS onset with multiple injections
28	0500	East	
	0950	West	
	1500		Slow onset.
29			SSC at 0459 UT. Magstorm follows
30			Final recovery from magstorm near 1300 UT.
31	0900	≈ center	
	1320	West	
	2050		

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

SOLAR PROTON EVENT (PROVISIONAL) AUGUST 1979

Date/Time(UT)	Detector	Observation	Remarks
August			
18/1400	Hα patrol	Start time of importance 1b(X6) flare; N10E90	Max 1416; end 1445 UT; McMath Region 16239. Peak 10-cm flux 740 units above background.
18/2030	IMS magnetometer network	Gradual onset of magnetic storm	The North American high-latitude magnetometer network consists of three meridional chains and an east-west chain along the auroral oval.
18/21XX	Fredericksburg magnetometer	Gradual onset of moderate magnetic storm	Gradual onset typical of major flare activity near east limb; storm not result of 1b(X6) flare earlier in the day.
19/0850	GOES-2	Proton event threshold exceeded	Threshold set at 10 part/cm^2 s sr for energies >10 MeV. Observations made at geostationary altitude (6.67 Earth radii). Gradual onset characteristic of flares east of centeral meridian.
19/2400	Fredericksburg magnetometer	A index = 40	
20/0903	Hα patrol	Start time of importance 2b(X5) flare; N05E76	Max 0919; end 1118 UT; McMath Region 16239. Peak 10-cm flux 660 units above background; accompanied by Type II burst.
20/0830	GOES-2	1st Max of >10 MeV proton flux	450 part/cm^2 s sr
20/1630	IMS magnetometer network	Very strong substorm onset	Several particle injections occurred; recovery near 1900 UT.
20/1700	GOES-2	2nd Max of >10 MeV proton flux	410 part/ cm^2 s sr; source probably 2b(X5) flare earlier in the day.
20/1700-1745	Thule 30 MHz riometer	Peak absorption 4.4 dB	Daylight conditions prevailed.
20/2400	Fredericksburg magnetometer	A index = 29	
21/0145	Hα patrol	Start time of importance Sn(M2) flare; N07E68	Max 0158; end 0226 UT; McMath Region 16239.
21/0215	IMS magnetometer network	Strong substorm onset	Multiple particle injections; observed east of Boulder.
21/0550	IMS magnetometer network	Strong substorm onset	Observed east of Boulder.
21/0611	Hα patrol	Start time of importance 1b(C6) flare; N15W38	Max 0613; end >0645 UT; McMath Region 16218.
21/0740	GOES-2	3rd Max of >10 MeV proton flux	500 part/cm^2 s sr; source probably 1b(C6) flare described in above entry.
21/0850	IMS magnetometer network	Strong substorm onset	Observed west of Boulder.
21/2400	Fredericksburg magnetometer	A index = 28	

Before solar rotation carried it over the west limb on September 2, 1979, McMath Region 16239 flared once more at the X level--a 2b(X2) flare that began 26/1638 UT near N05W09. This plage's associated spot group developed at nearly the same solar latitude and longitude as the proton producing region of September 1977.

SGD 421 Part I (Prompt)

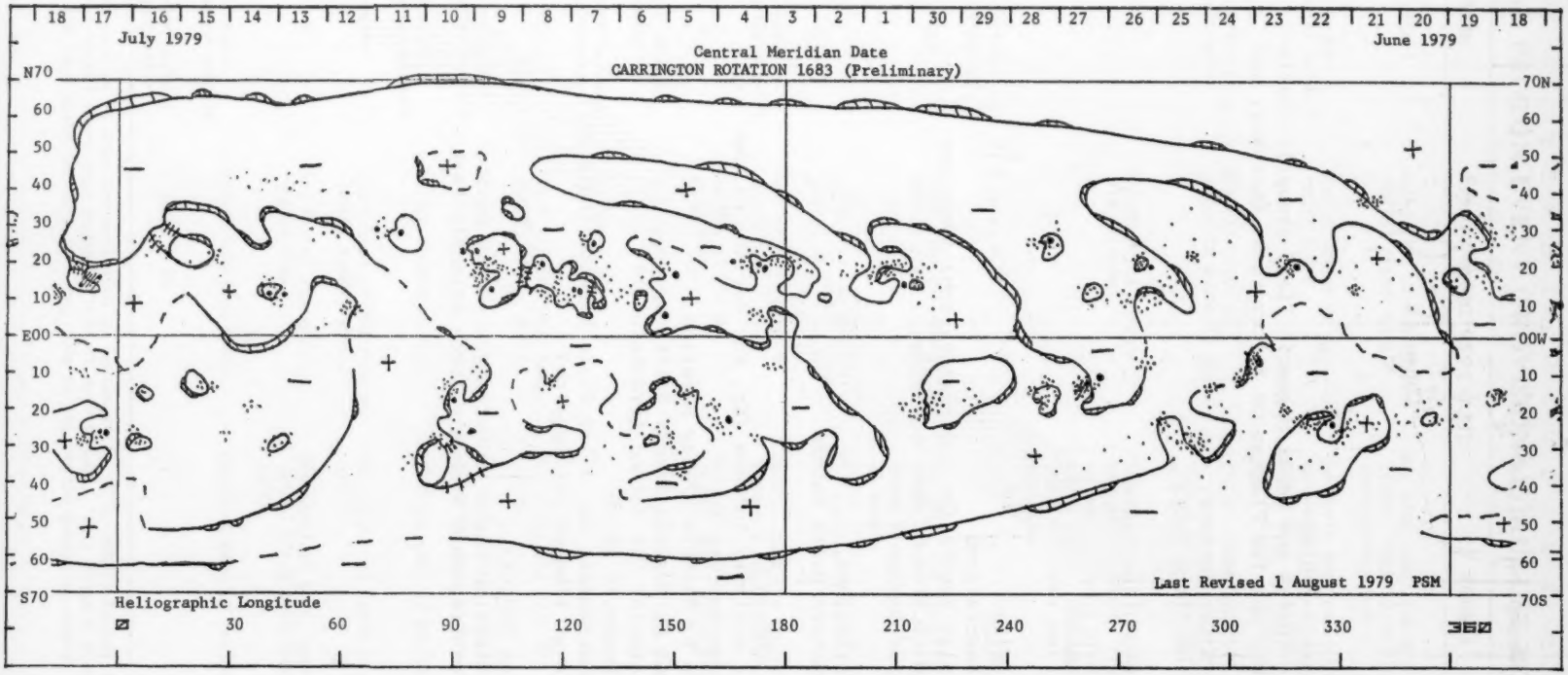
JULY 1979 DATA

Contents

	Page
Daily Solar Activity Center	
Hα Synoptic Charts and Solar Magnetic Field Synoptic Charts	44-49
Magnetograms, Calcium Plages, Hα Filtergrams, Sunspots, and Corona	50-111
Regions of Solar Activity	112-125
Daily Calcium Plage Index	125
Sudden Ionospheric Disturbances	126-128
Solar X-ray Radiation	
Solrad 11	129-144
Solar Radio Emission	
Spectral Observations	145-153
Selected Solar Events (by Radioheliograph) (Data not available at time of publication)	
Cosmic Rays	
Chart of Variations	154-157
Neutron Monitors Daily Values	158
Geomagnetic Indices	
Geomagnetic Activity Indices (Kp, Kn, Ks, Km, Cp, Ap, aa)	159
Daily Average Indices Ap	160
Chart of Kp by Bartels 27-day Rotation	161
Chart of Dst by Bartels 27-day Rotation	162
Hourly Equatorial Dst Values (Provisional)	163
Principal Magnetic Storms	164
Sudden Commencements and Solar Flare Effects (Data not available at time of publication)	
Radio Propagation Indices	
Quality Indices on Paths to Germany	165
Transmission Frequency Ranges - North Atlantic Path	166-167

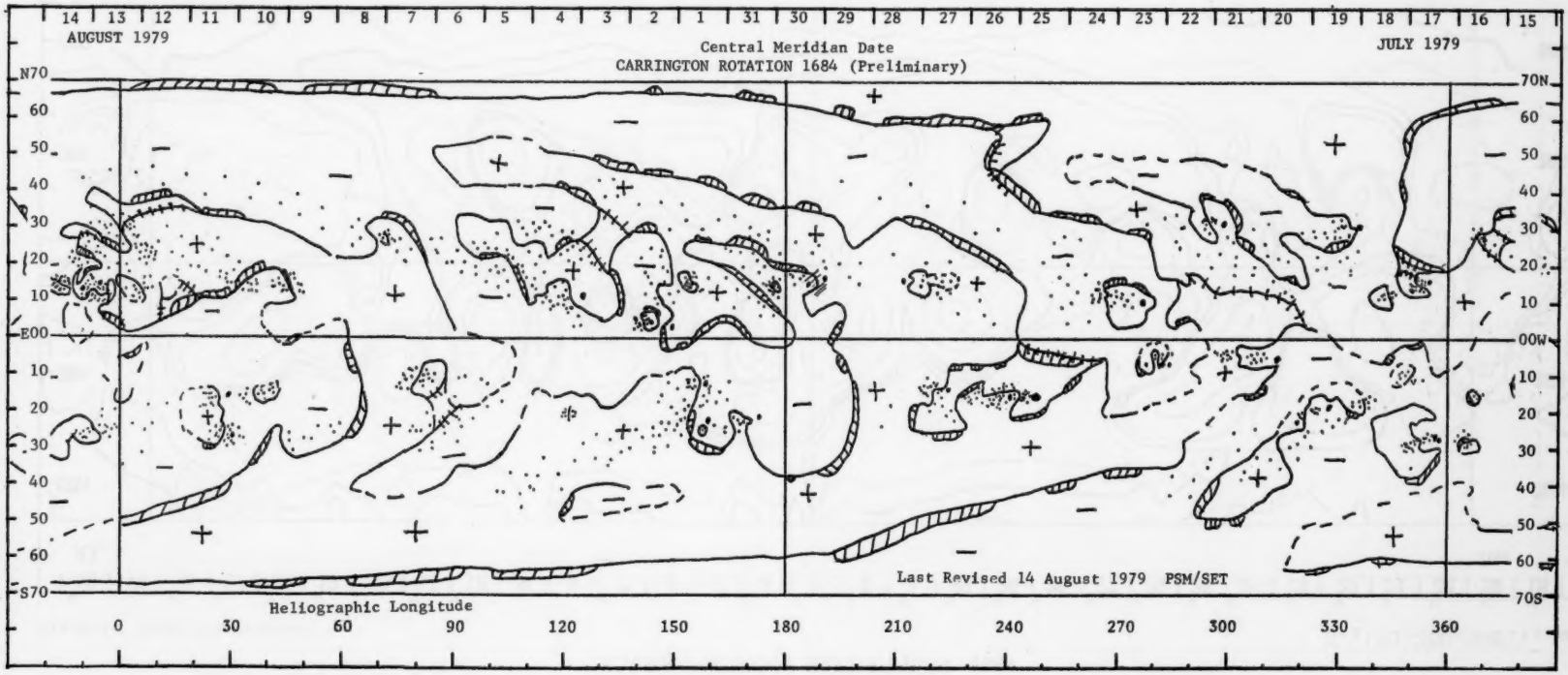
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1683 (PRELIMINARY)



Hα SYNOPTIC CHART

CARRINGTON ROTATION 1684 (PRELIMINARY)

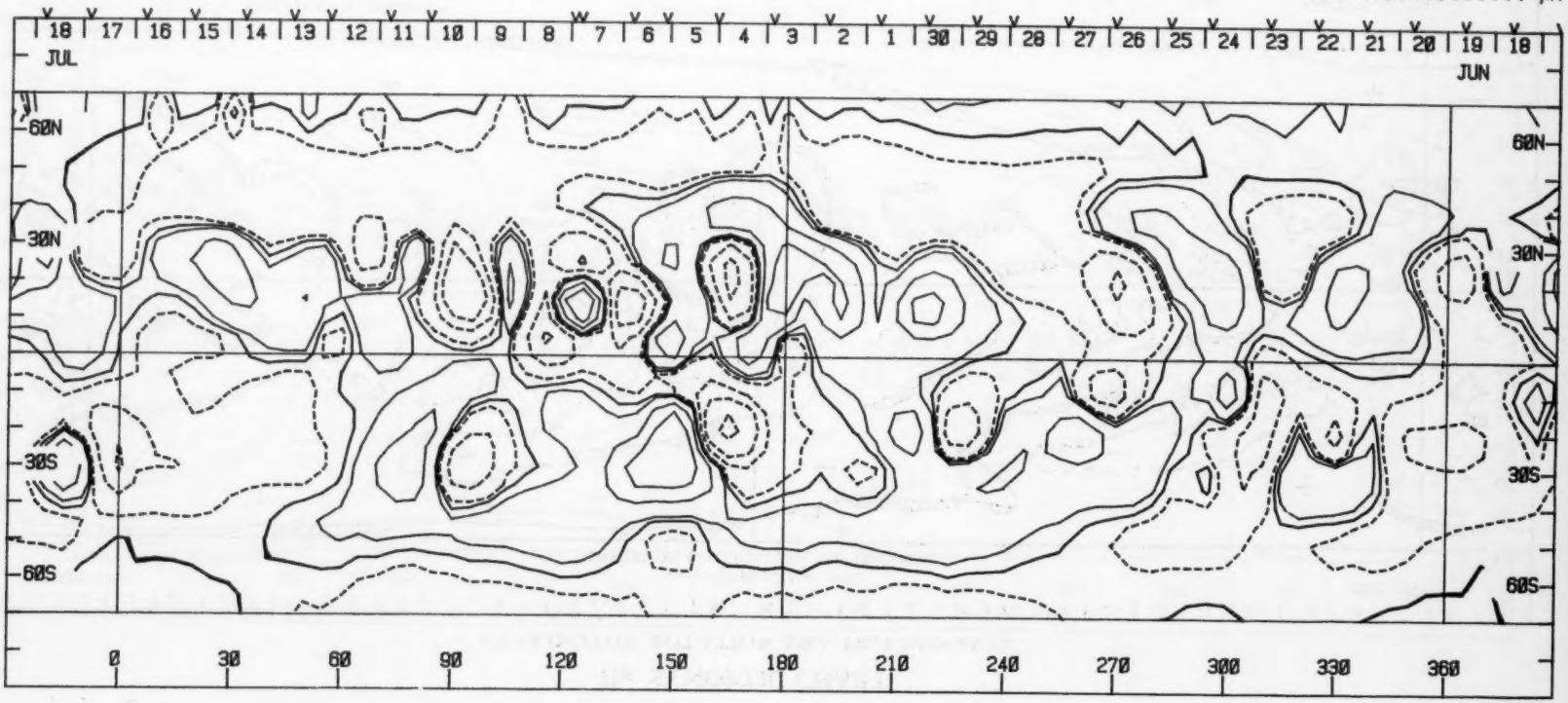


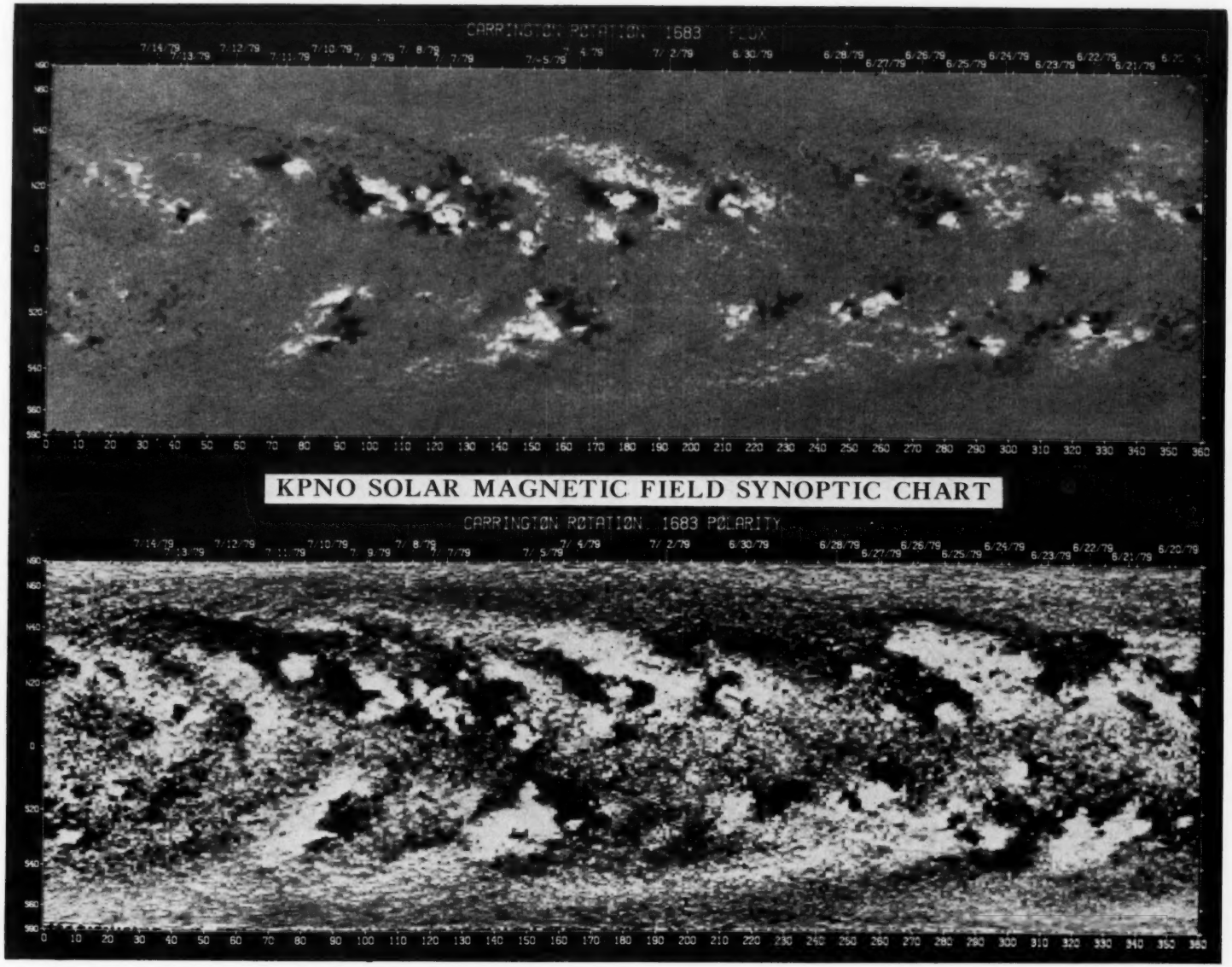
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1683

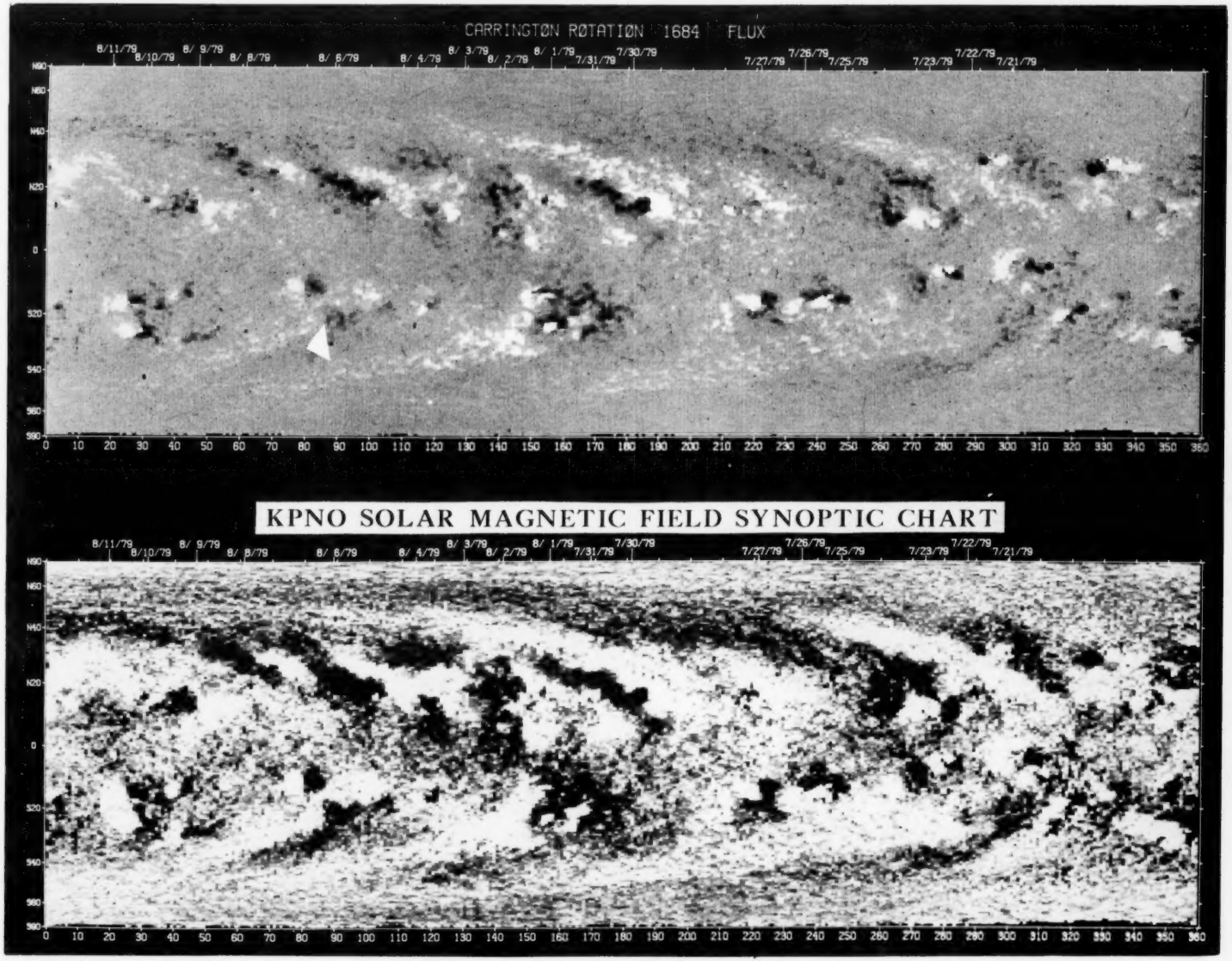
Stanford Solar Observatory

0,±100,200,500... μT

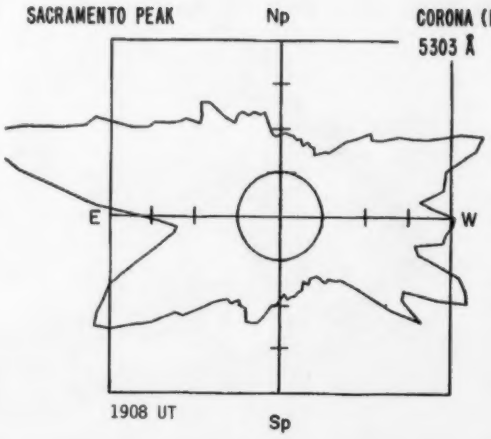


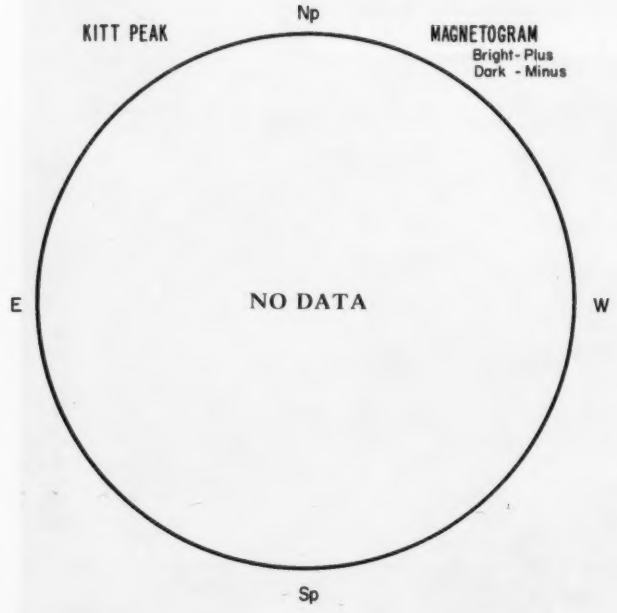


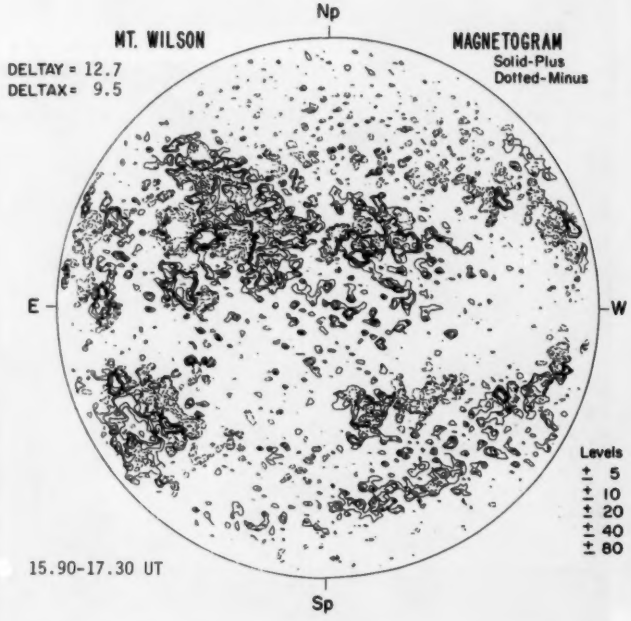
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART


CARRINGTON ROTATION 1684 FLUX
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

JULY 1, 1979 (P=-2.97, B_o=2.84, L_o=214.01)

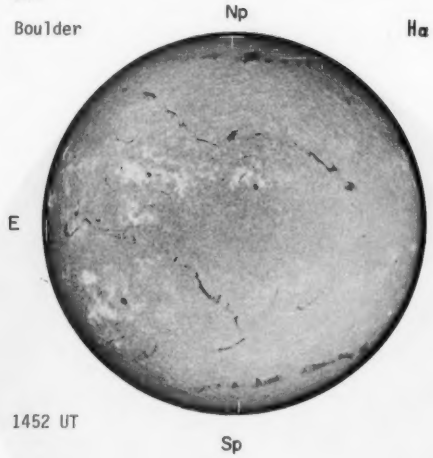






OI

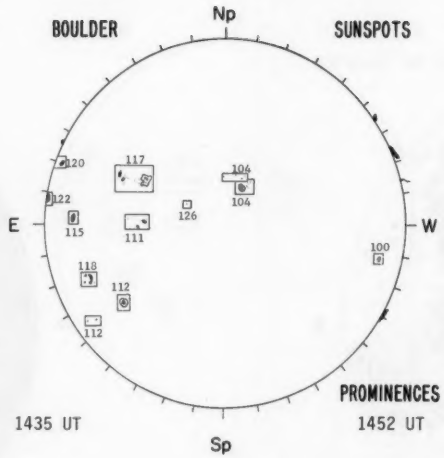
Boulder



1452 UT

Hα

BOULDER



1435 UT

SUNSPOTS

PROMINENCES

1452 UT

McMATH-HULBERT

CALCIUM REPORT

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

---- UT

Sp

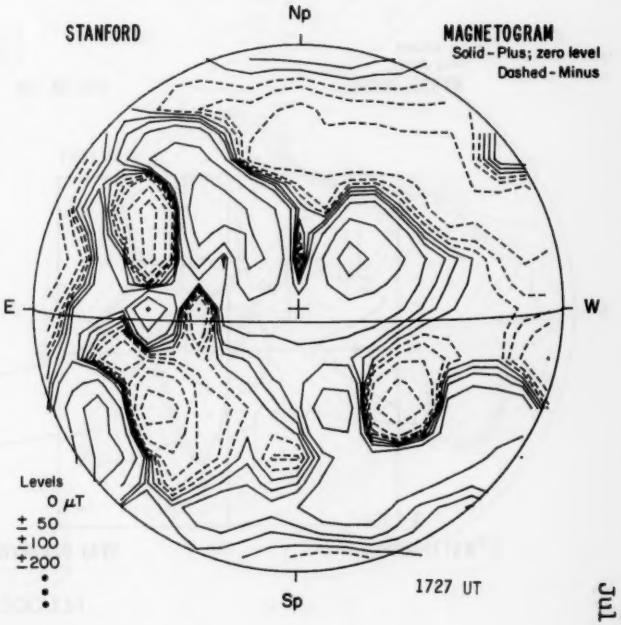
Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM

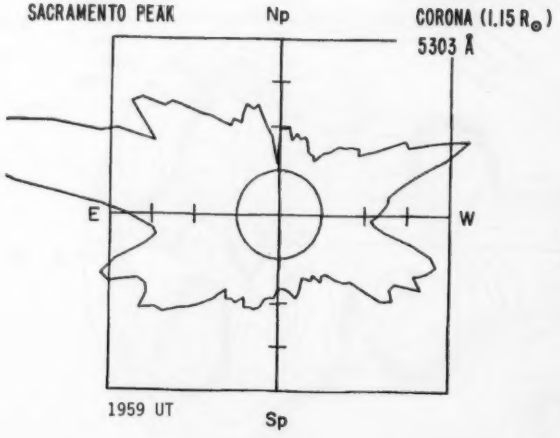
Solid - Plus; zero level

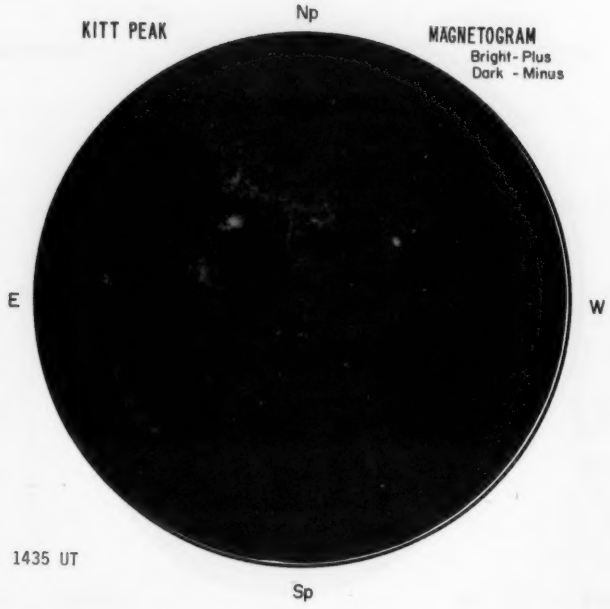
Dashed - Minus

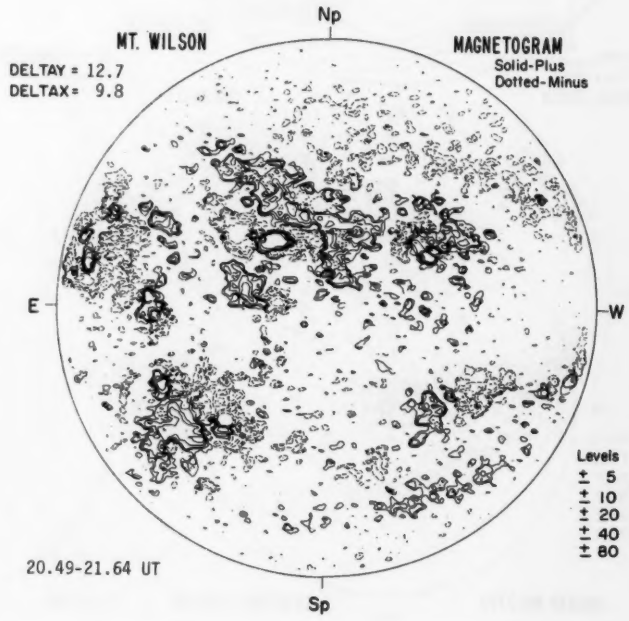


1727 UT

JULY 2, 1979 (P = -2.51, B_o = 2.95, L_o = 200.77)







Sp

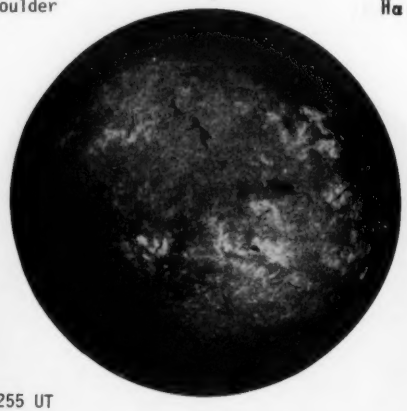
Sp

02

Boulder

Np

Hα



E

W

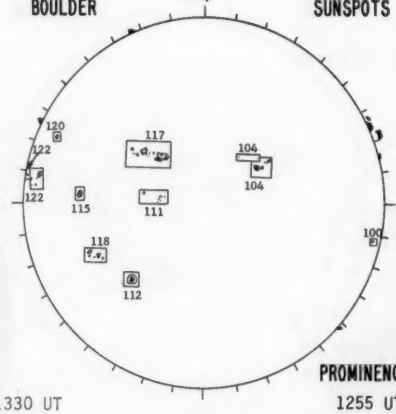
1255 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

PROMINENCES

1330 UT

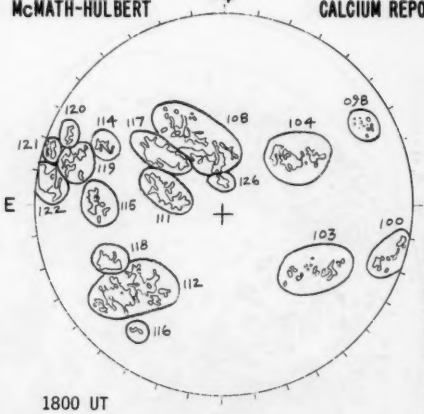
1255 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

1800 UT

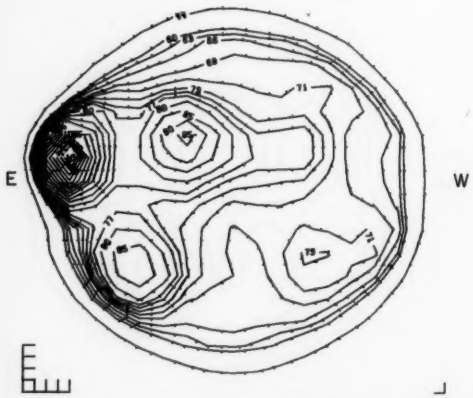
Sp

GOOD	M
04- 2300-3.0	
08- 3600-3.0	
11- 1900-3.0	
12- 5300-3.0	
15- 1400-2.5	
17- 3500-3.5	
18- 2100-3.0	
19- 1600-2.5	
20- 0600-3.0	
21- 1300-3.0	
22- 4000-3.5	

NOSC LA POSTA

Np

2.0 CM



E

W

1614 UT

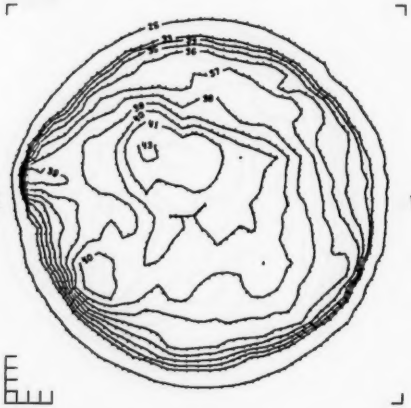
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1524 UT

Sp

Ant. Temp. Unit 100° K

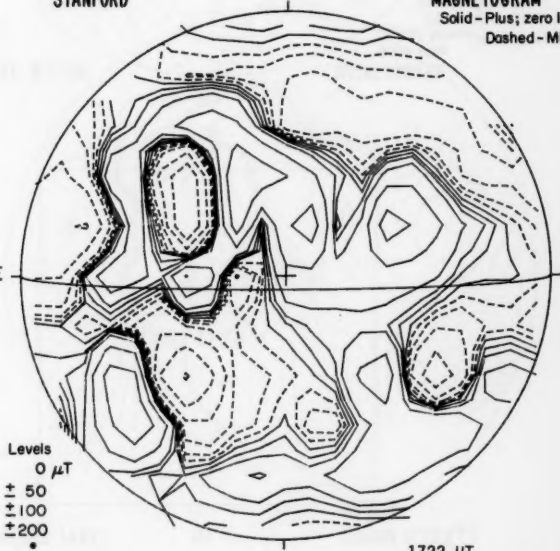
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

•

•

•

1722 UT

Sp

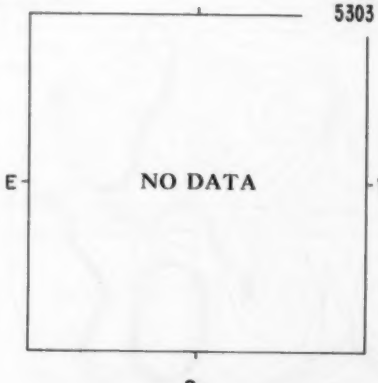
53

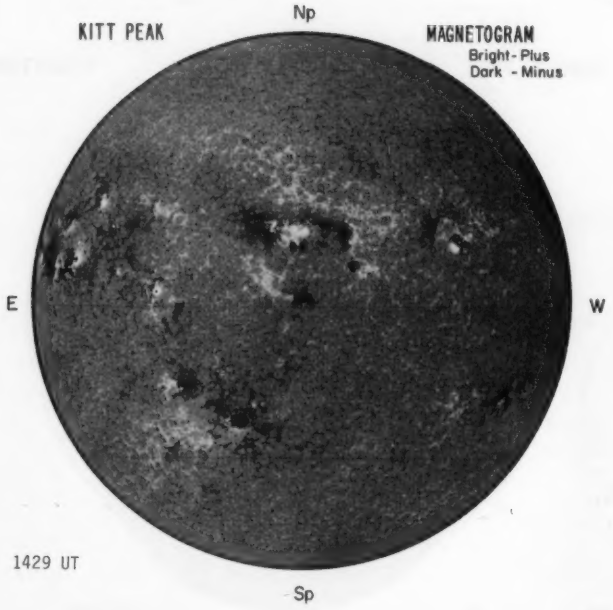
Jul 79

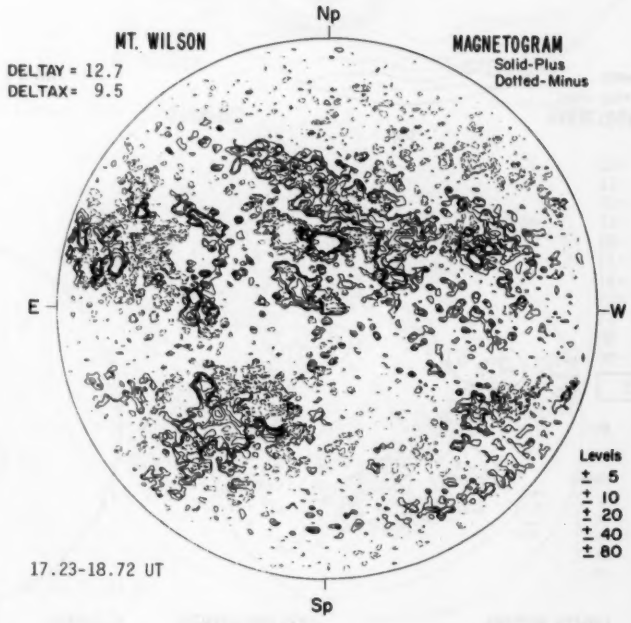
JULY 3, 1979 ($P_\odot$ = -2.06, B_o = 3.06, L_o = 187.53)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å







03

Boulder

Np

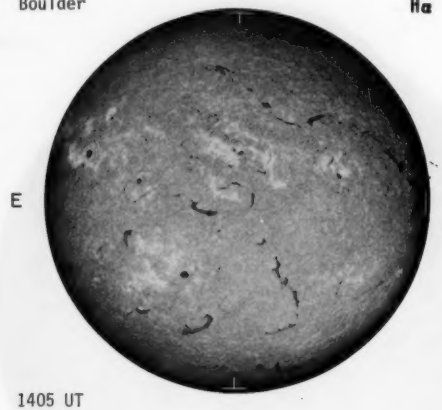
Hα

E

W

Sp

1405 UT



BOULDER

Np

SUNSPOTS

E

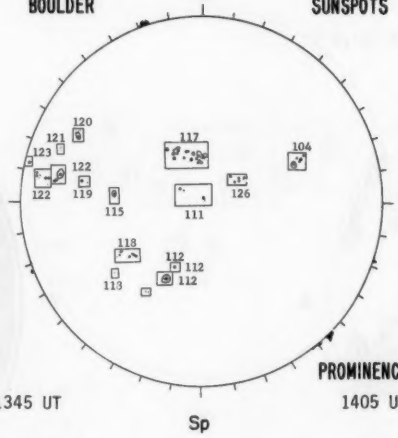
W

Sp

PROMINENCES

1345 UT

1405 UT



McMATH-HULBERT

Np

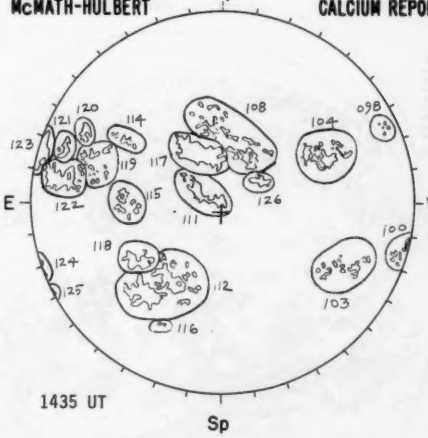
CALCIUM REPORT

E

W

Sp

1435 UT



FAIR	M
04- 2500-3.0	
08- 3200-3.0	
11- 1600-2.5	
12- 5000-2.5	
15- 1100-2.5	
17- 3700-3.0	
18- 1700-2.5	
20- 0700-3.0	
21- 1200-3.0	
22- 4000-3.5	
23- 4500-3.5	
26- 0700-2.5	

NOSC LA POSTA

Np

2.0 CM

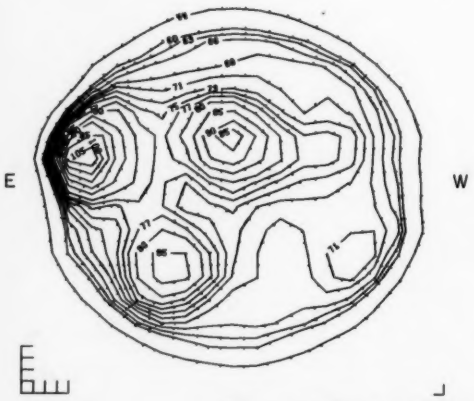
E

W

Sp

1603 UT

Ant. Temp. Unit 100° K



NOSC LA POSTA

Np

8.6 MM

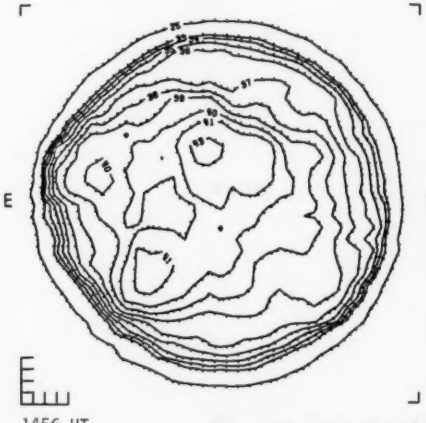
E

W

Sp

1456 UT

Ant. Temp. Unit 100° K



STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Sp

2032 UT

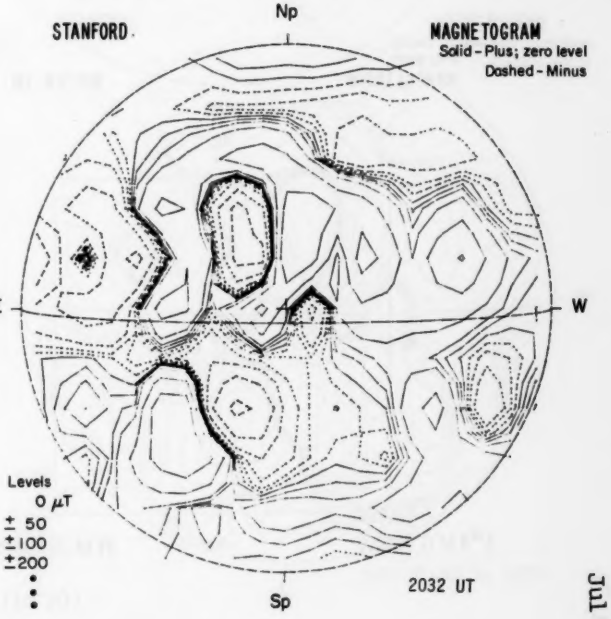
Levels

0 μT

± 50

±100

±200



55

Jul 79

JULY 4, 1979 (P=-1.61, B_o=3.17, L_o=174.30)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1724 UT

Sp

MT. WILSON

Np

DELTAY = 12.7
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

W

Levels
± 5
± 10
± 20
± 40
± 80

16.57-17.93 UT

Sp

Sp

04

Boulder

Np

Hα

E W

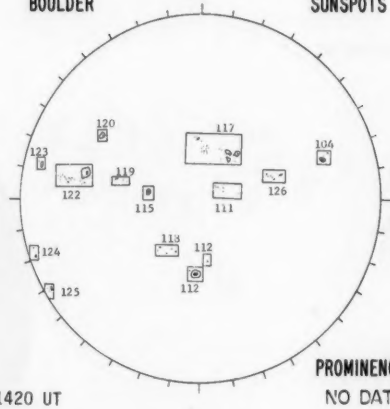
1337 UT

Sp

BOULDER

Np

SUNSPOTS



E W

PROMINENCES

NO DATA

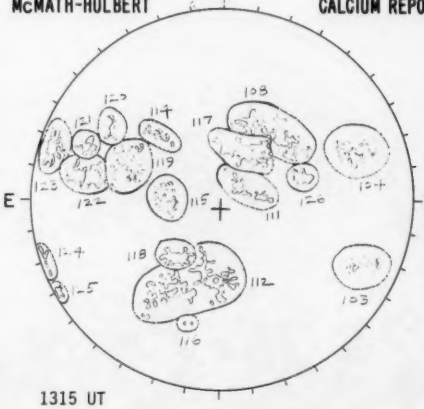
1420 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E W

FAIR	M
04- 2500-3.0	
08- 3500-2.5	
11- 1600-2.5	
12- 5000-2.5	
17- 3800-3.5	
18- 1500-2.5	
20- 0700-3.0	
21- 1000-3.0	
22- 4000-3.5	
23- 4300-3.5	
24- 1500-3.5	
25- 1200-2.5	
26- 1000-3.0	

1315 UT

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

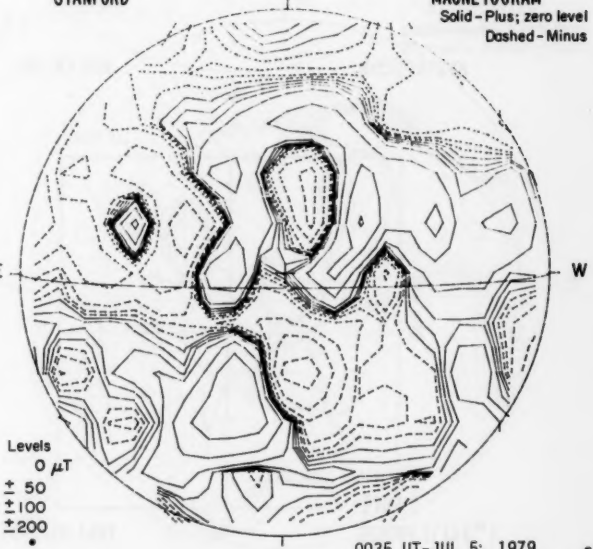
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

Sp

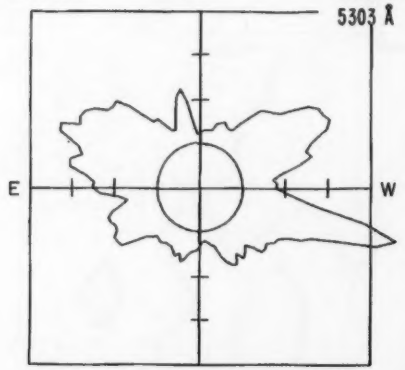
0035 UT-JUL 5, 1979

57

Jul 79

JULY 5, 1979 (P =-1.15, B_o = 3.28, L_o = 161.06)

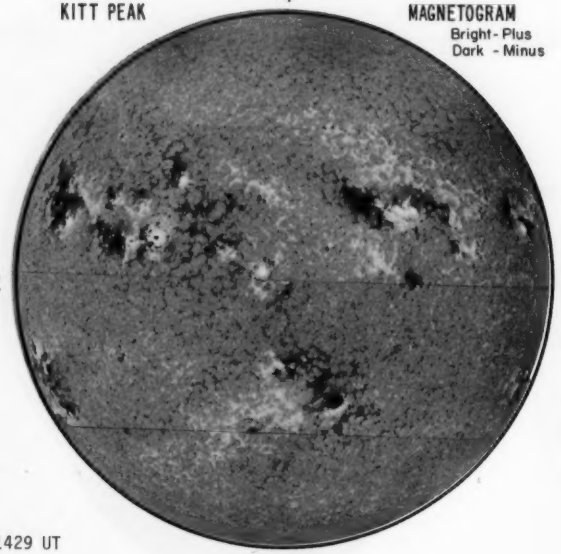
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1404 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



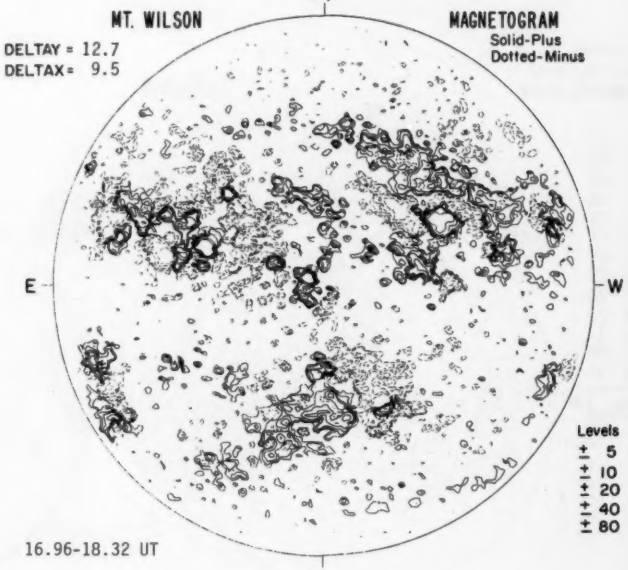
1429 UT

Sp

Np

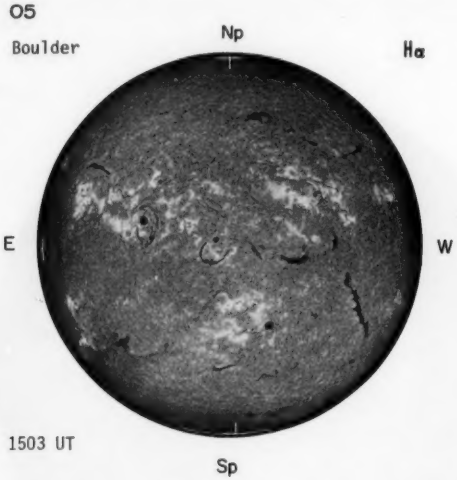
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

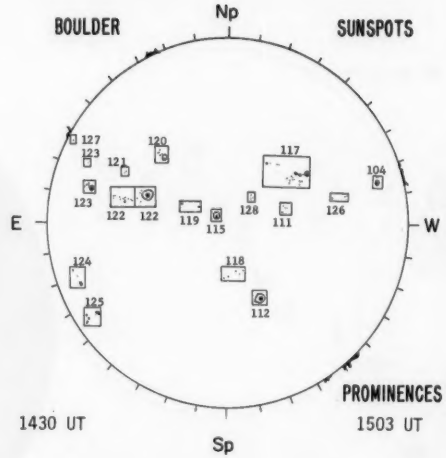
DELTAY = 12.7
DELTAX = 9.5

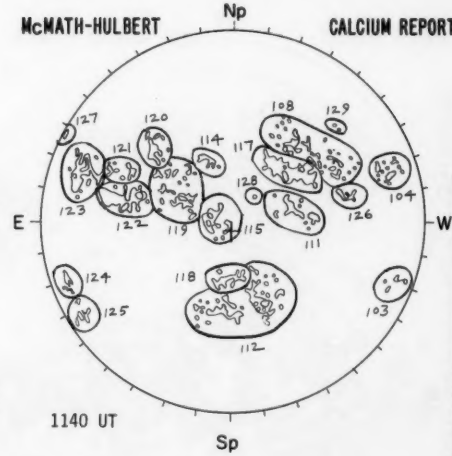


16.96-18.32 UT

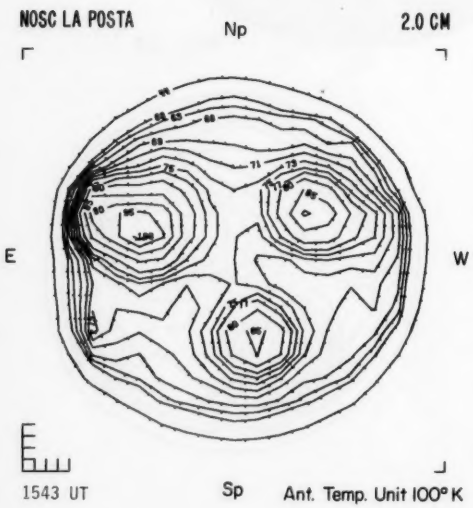
Sp

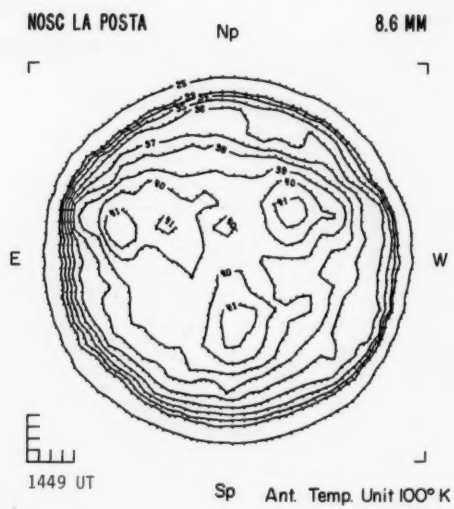


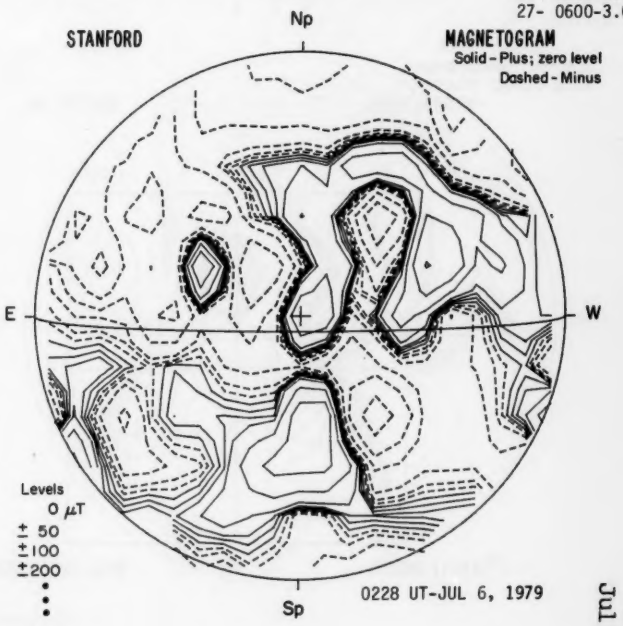




FAIR	S
04-	2100-3.0
08-	3500-2.5
11-	1600-2.5
12-	4800-2.5
15-	1300-2.5
17-	3500-3.0
18-	1500-2.5
19-	1600-2.5
20-	1000-3.0
21-	1000-2.5
22-	3700-3.0
23-	4000-3.0
24-	1300-3.5
25-	1500-3.0
26-	0800-2.5
27-	0600-3.0





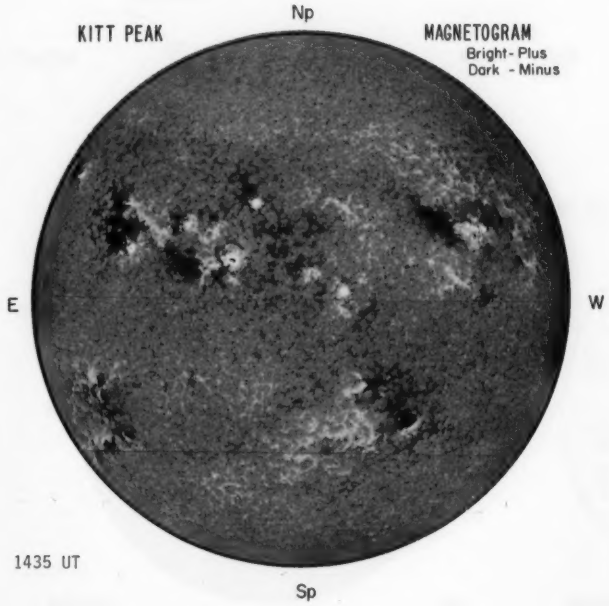


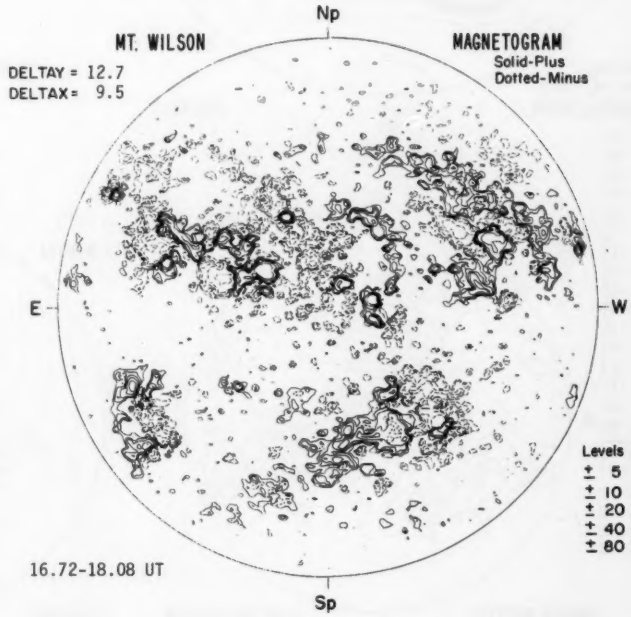
JULY 6, 1979 (P=-0.70, B_o=3.38, L_o=147.83)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

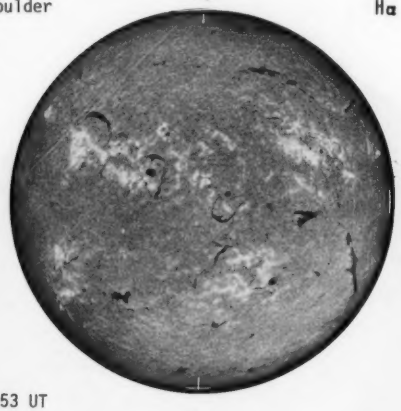
1353 UT Sp





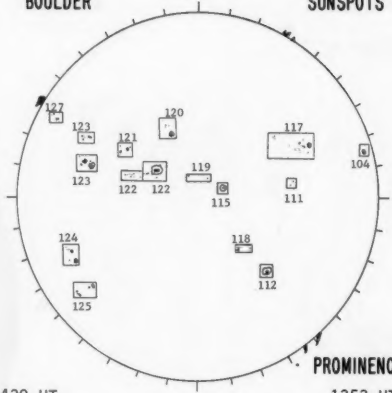
06

Boulder Np Hα



1353 UT

BOULDER Np SUNSPOTS

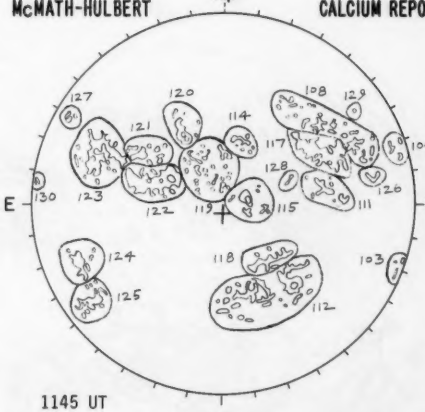


1430 UT

PROMINENCES

1353 UT

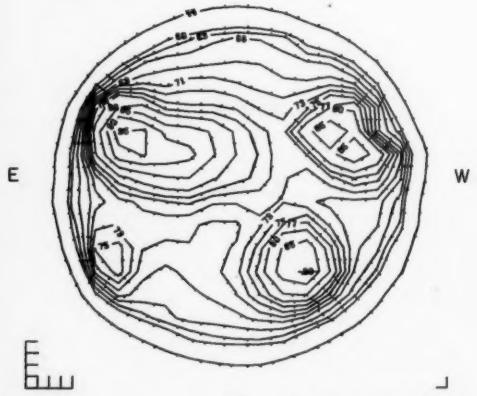
McMATH-HULBERT Np CALCIUM REPORT



1145 UT

	GOOD	S
04-	1800	3.0
08-	3200	2.5
11-	1500	2.5
12-	4300	2.5
17-	4100	3.0
18-	1600	3.0
19-	1900	2.5
20-	1000	3.0
21-	1200	2.5
22-	4000	3.0
23-	4000	3.5
24-	1600	3.0
25-	2000	3.0
26-	0600	2.5
27-	0600	3.0

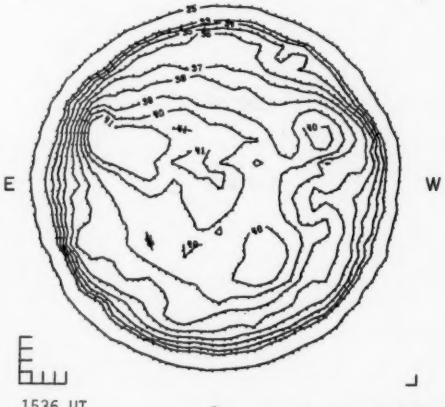
NOSC LA POSTA Np 2.0 CM



1634 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



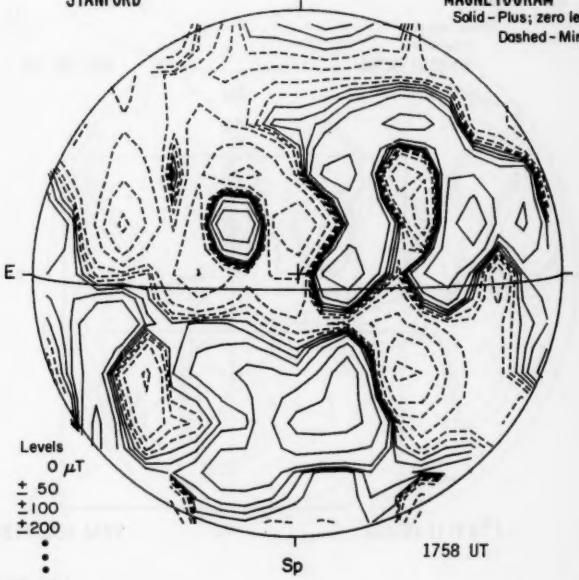
1536 UT

Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

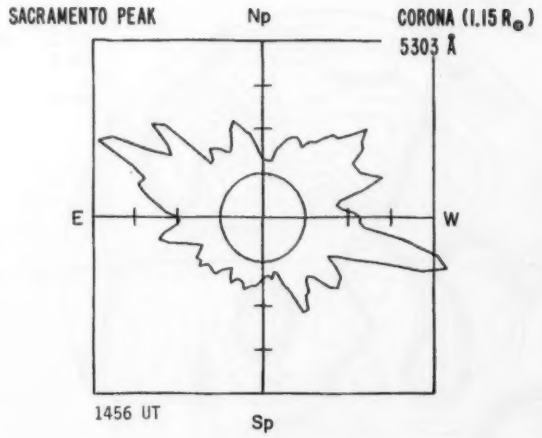
Dashed - Minus



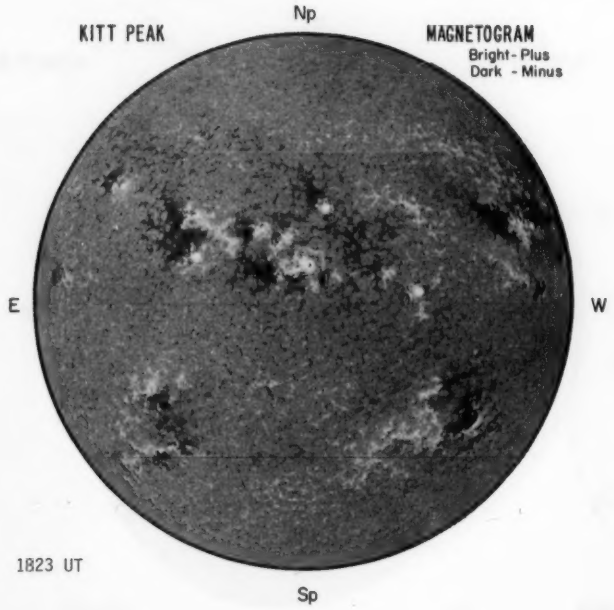
1758 UT

JULY 7, 1979 (P=-0.24, B_o=3.49, L_o=134.59)

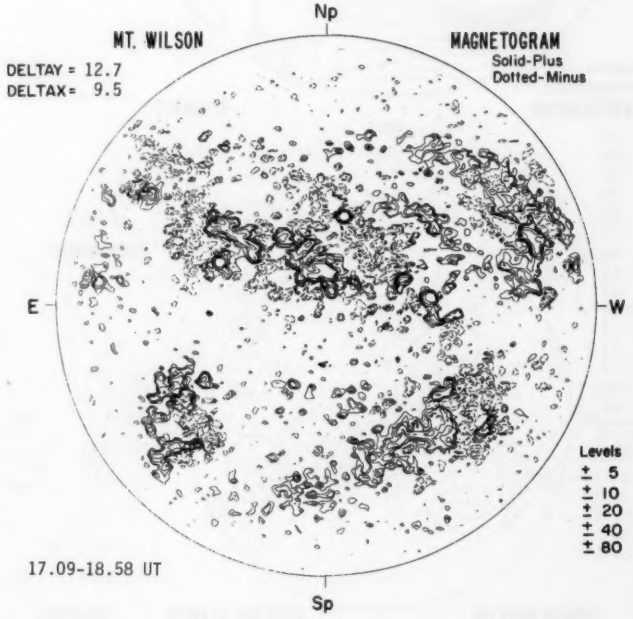
SACRAMENTO PEAK



1456 UT



1823 UT



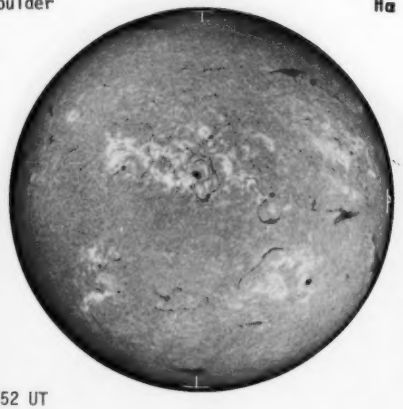
17.09-18.58 UT

07

Boulder

Np

Hα



E W

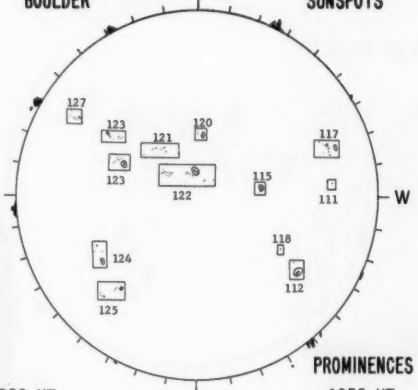
1352 UT

Sp

BOULDER

Np

SUNSPOTS



E W

1320 UT

Sp

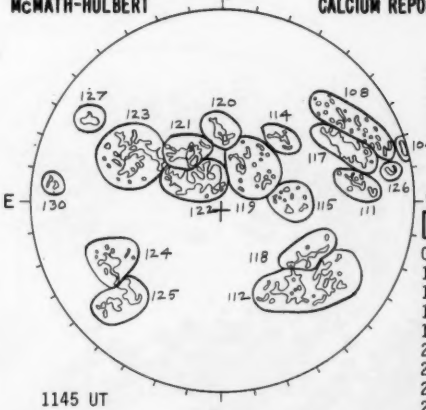
PROMINENCES

1352 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E W

1145 UT

Sp

FAIR	S
08- 3000-2.0	
11- 1400-2.5	
12- 4500-2.5	
17- 4300-3.5	
18- 1200-3.0	
20- 1100-3.0	
21- 1300-2.5	
22- 4000-3.0	
23- 4000-3.5	
24- 1600-3.5	
25- 2300-3.0	
26- 0400-2.5	
27- 0800-3.0	

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

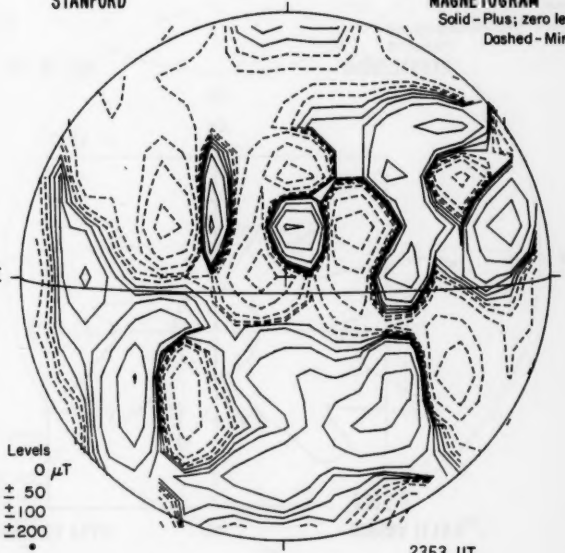
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

•

•

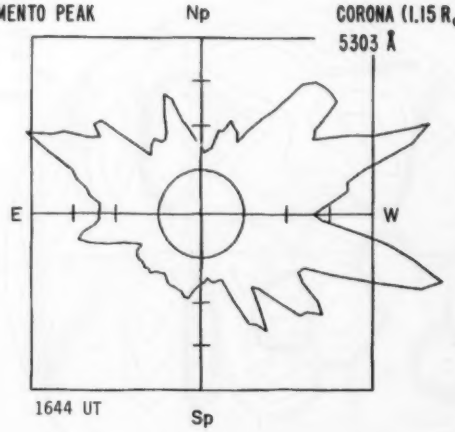
•

2353 UT

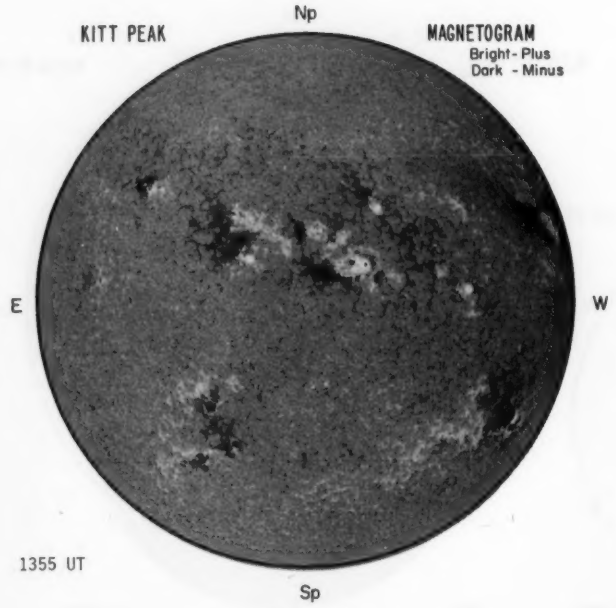
Sp

JULY 8, 1979 (P = 0.21, B_o = 3.59, L_o = 121.36)

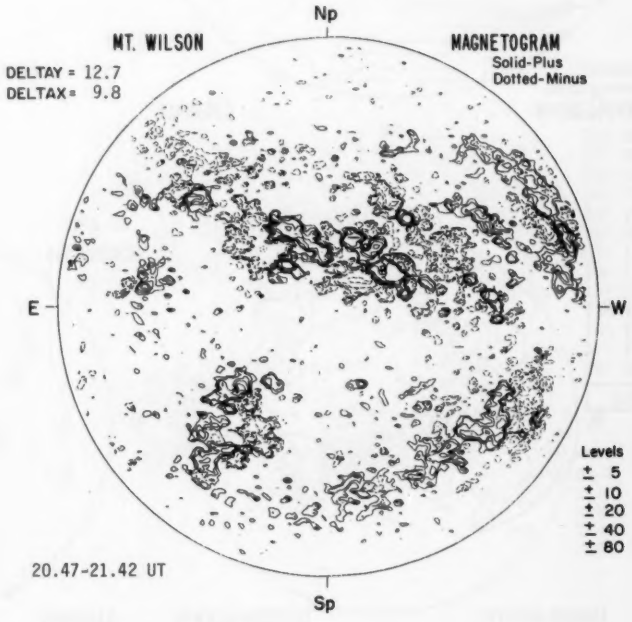
SACRAMENTO PEAK



1644 UT



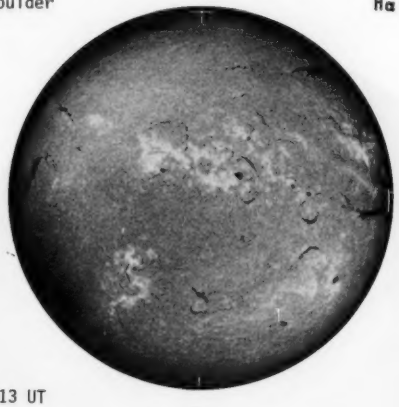
1355 UT



20.47-21.42 UT

08

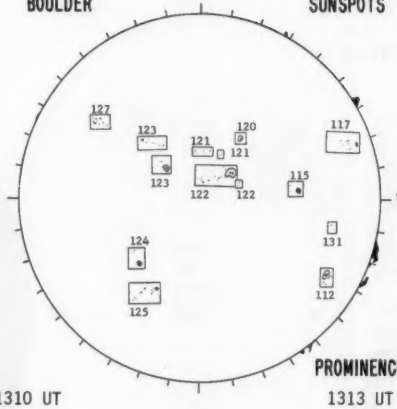
Boulder Np Hα



E W

1313 UT Sp

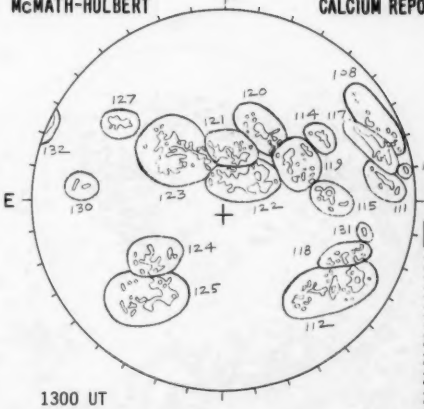
BOULDER Np SUNSPOTS



E W

1310 UT Sp PROMINENCES 1313 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

1300 UT Sp

GOOD	S
11- 1400-2.5	
12- 4500-3.0	
17- 3800-3.5	
18- 1200-2.5	
20- 1300-3.0	
21- 1300-2.5	
22- 3700-3.0	
23- 4500-3.0	
24- 1600-3.0	
25- 3000-3.0	
27- 1200-3.5	
31- 0200-2.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

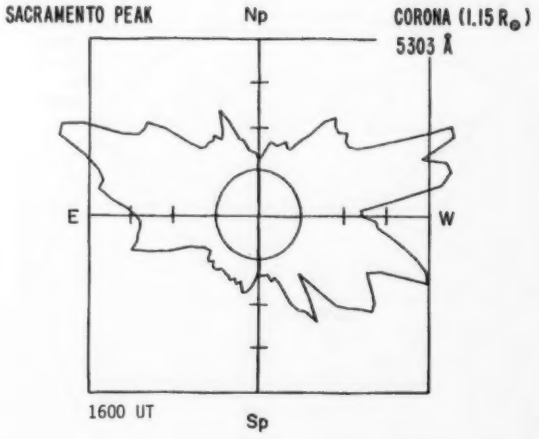
NO DATA

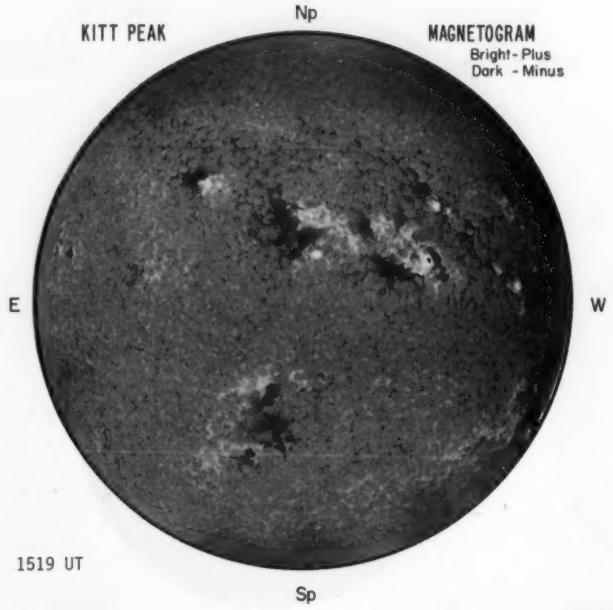
E W

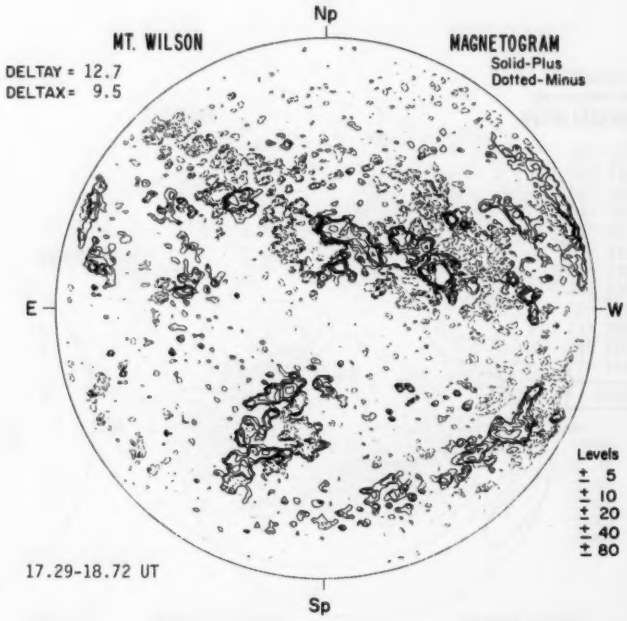
Sp

Levels
0 μT
± 50
±100
±200
•
•
•

JULY 9, 1979 (P = 0.66, B_o = 3.70, L_o = 108.12)

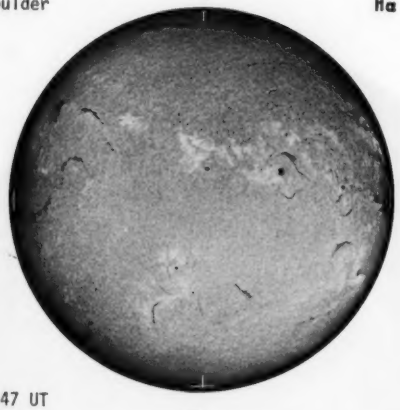






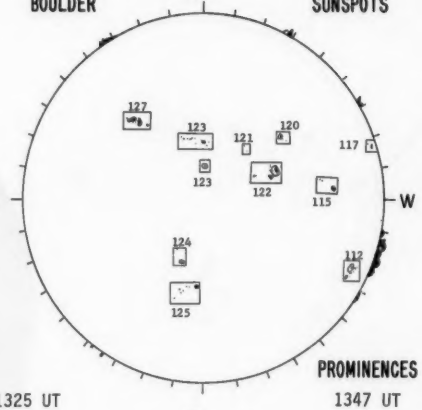
09

Boulder



1347 UT

BOULDER SUNSPOTS

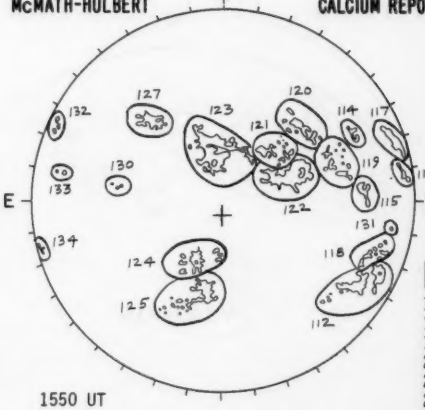


1325 UT

PROMINENCES

1347 UT

McMATH-HULBERT CALCIUM REPORT



1550 UT

POOR	M
12- 4500-3.0	
17- 3800-3.0	
18- 1200-2.5	
20- 1300-2.5	
21- 1300-2.5	
22- 3700-3.0	
23- 4300-3.0	
24- 1600-2.5	
25- 2800-2.5	
27- 1400-3.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

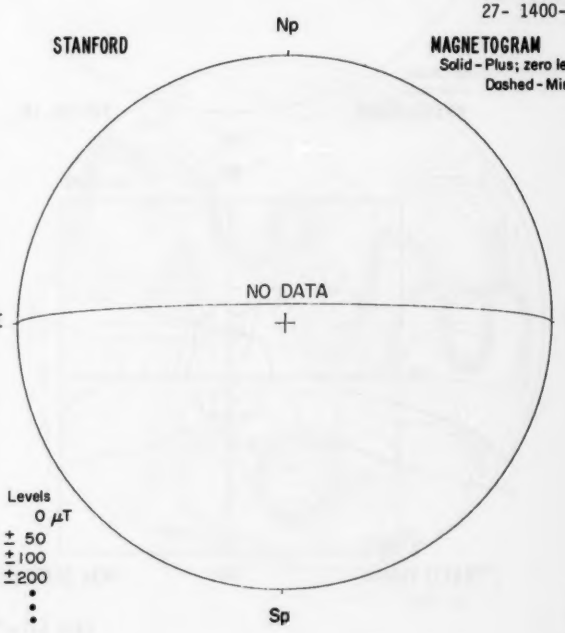
NOSC LA POSTA Np 8.6 MM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD



MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

•

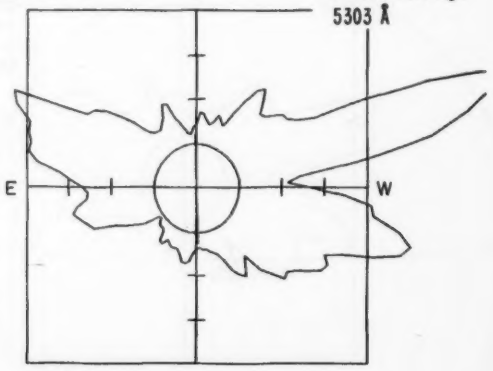
•

67

Jul 79

JULY 10, 1979 (P = 1.11, B_o = 3.80, L_o = 94.89)

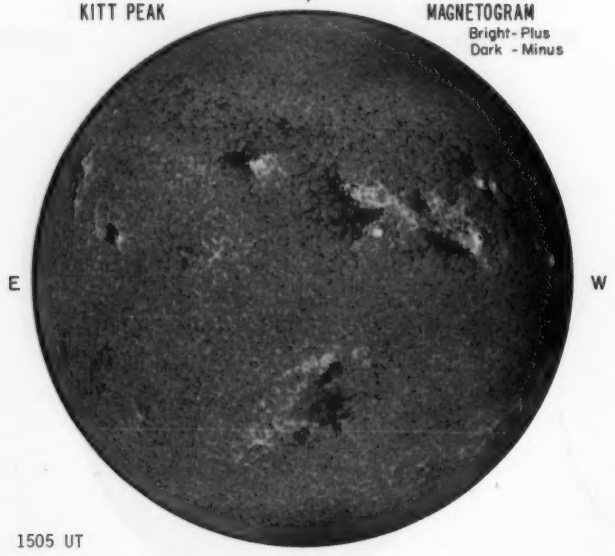
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1454 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

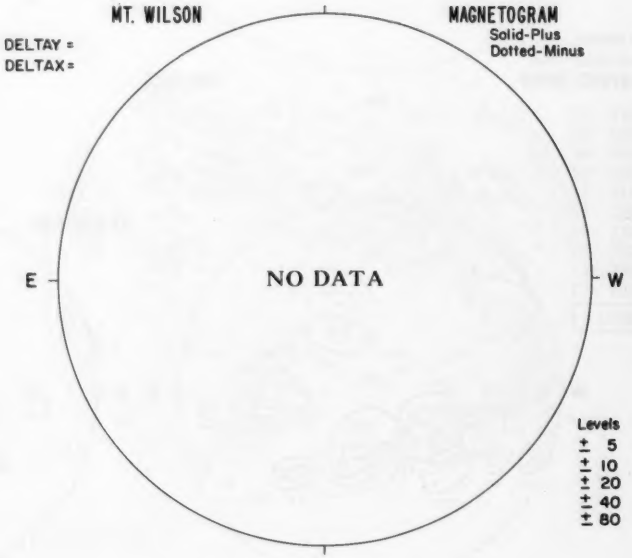


1505 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =



Sp

Sp

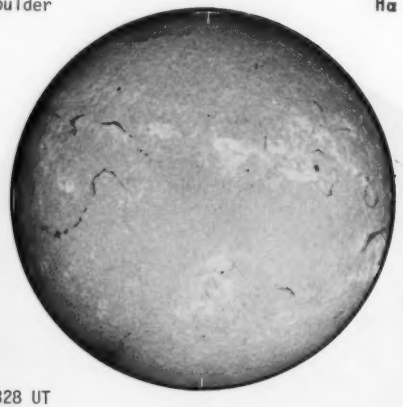
Sp

IO

Boulder

Np

Hα



E

W

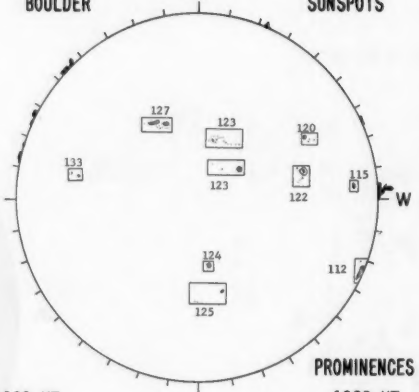
1328 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1300 UT

Sp

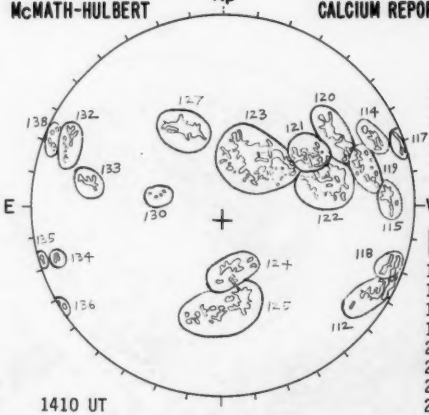
PROMINENCES

1328 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

1410 UT

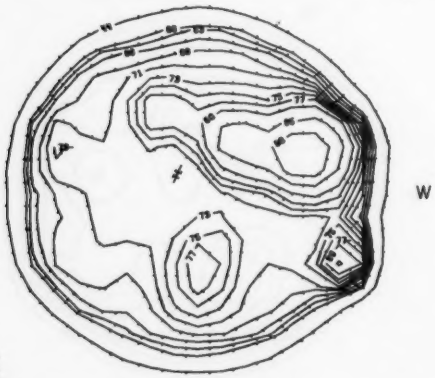
Sp

GOOD	M
12- 3700-2.5	
15- 1100-2.5	
17- 2500-2.5	
19- 1000-2.5	
20- 1500-3.0	
21- 1300-2.5	
22- 3700-3.0	
23- 4500-3.5	
24- 1400-3.0	
25- 2800-2.5	
27- 1500-3.5	
33- 0800-3.0	

NOSC LA POSTA

Np

2.0 CM



E

W

1617 UT

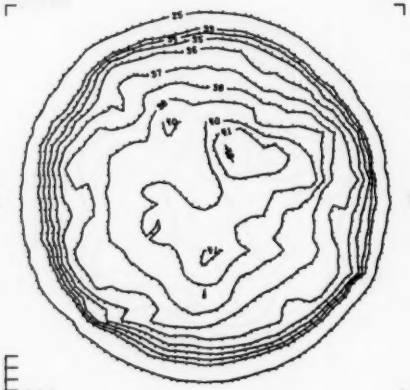
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1505 UT

Sp

Ant. Temp. Unit 100° K

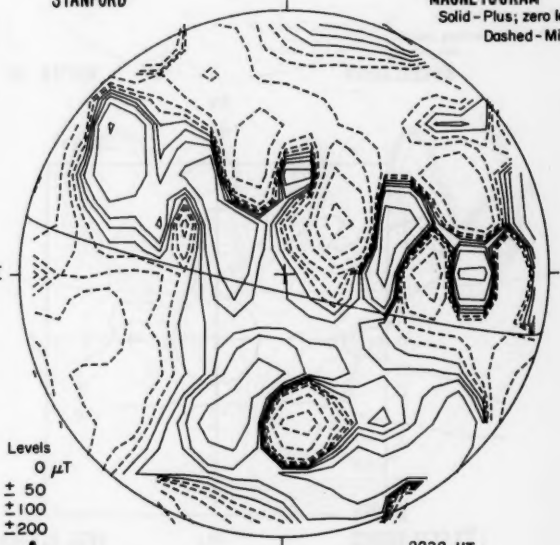
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

2232 UT

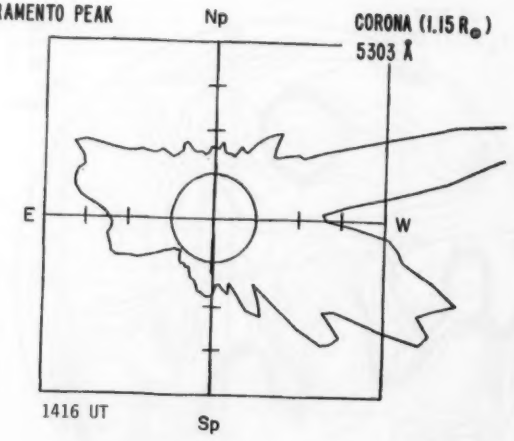
Sp

69

Jul 79

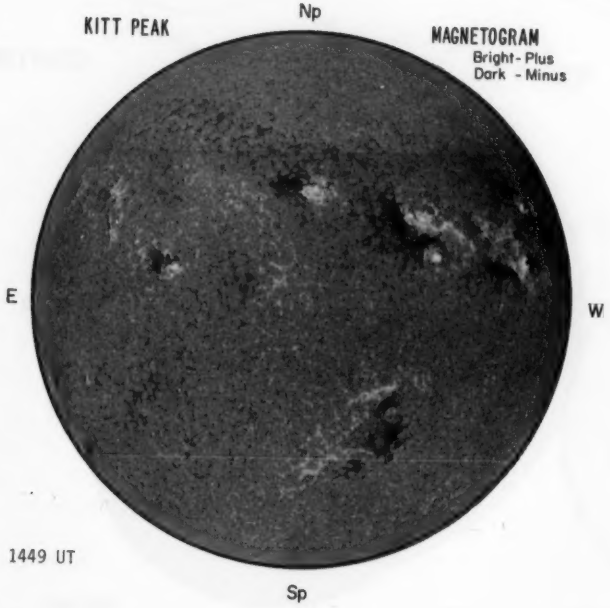
JULY 11, 1979 (P = 1.57, B_o = 3.90, L_o = 81.65)

SACRAMENTO PEAK



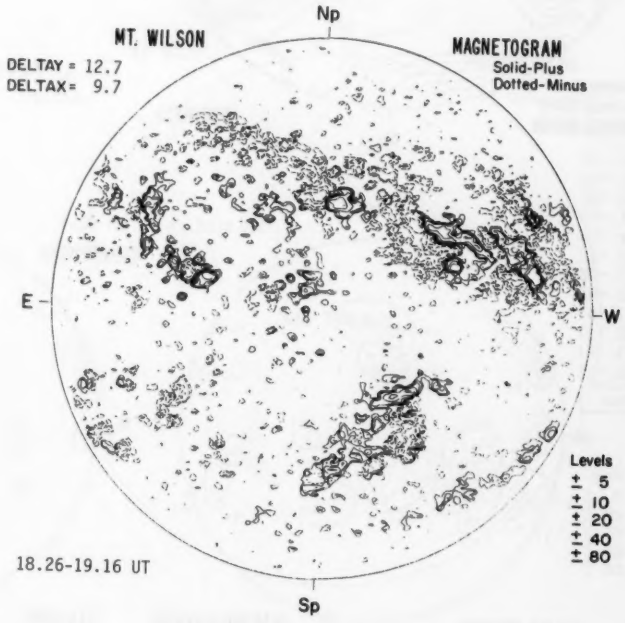
1416 UT

KITT PEAK

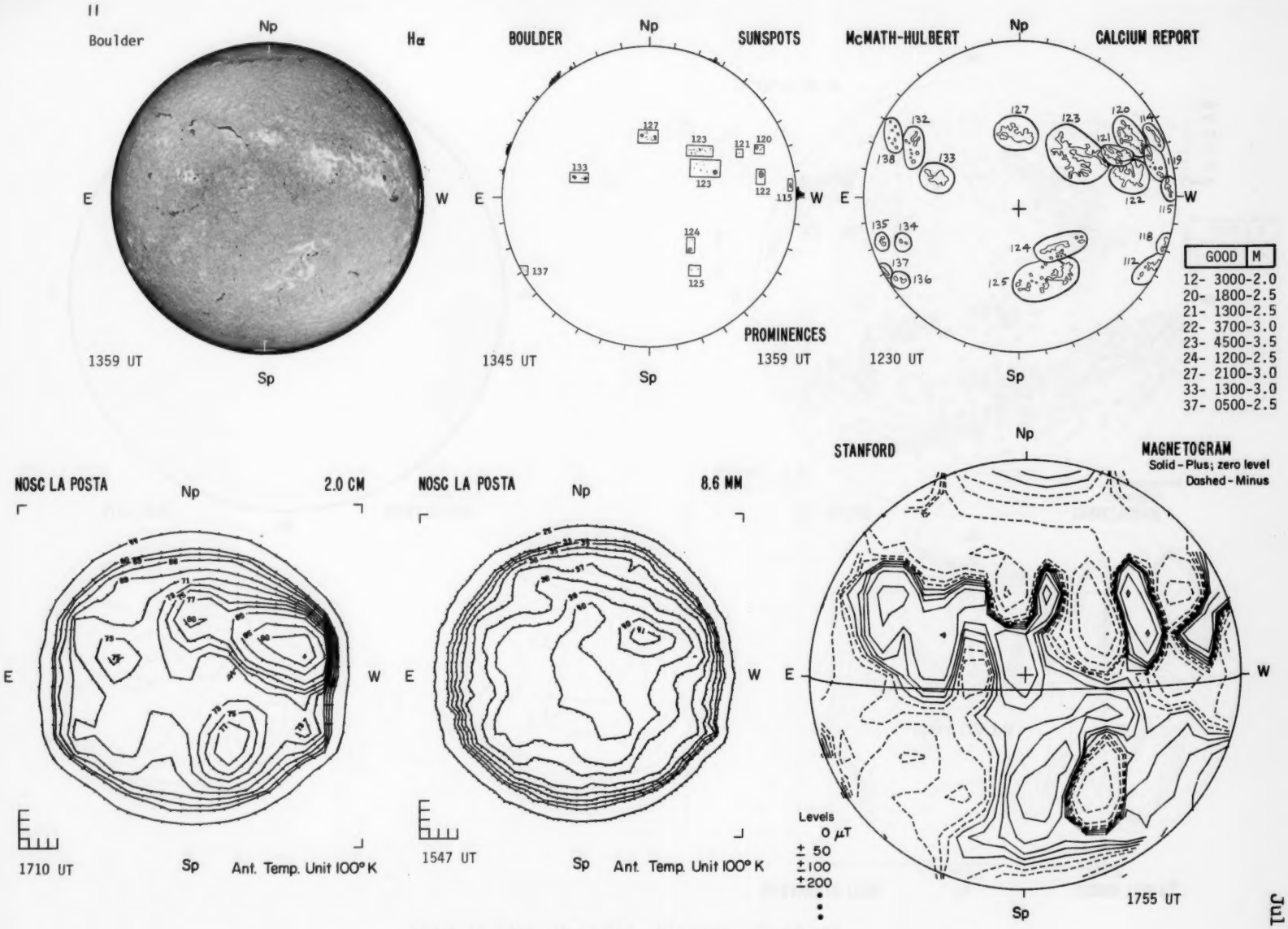


1449 UT

MT. WILSON



18.26-19.16 UT


II
Boulder
Np
Hα
E
W
Sp
1359 UT
BOULDER
SUNSPOTS
PROMINENCES
1345 UT
1359 UT
McMATH-HULBERT
CALCIUM REPORT
1230 UT
GOOD | M
12- 3000-2.0
20- 1800-2.5
21- 1300-2.5
22- 3700-3.0
23- 4500-3.5
24- 1200-2.5
27- 2100-3.0
33- 1300-3.0
37- 0500-2.5
NOSC LA POSTA
2.0 CM
1710 UT
Ant. Temp. Unit 100° K
NOSC LA POSTA
8.6 MM
1547 UT
Ant. Temp. Unit 100° K
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Levels
0 μT
± 50
± 100
± 200
1755 UT

JULY 12, 1979 (P = 2.02, B_o = 4.00, L_o = 68.42)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E W

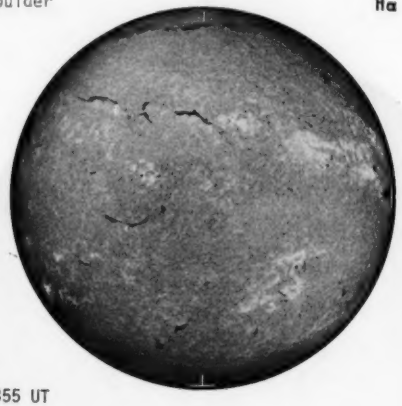
Levels
± 5
± 10
± 20
± 40
± 80

17.12-18.56 UT

Sp

12

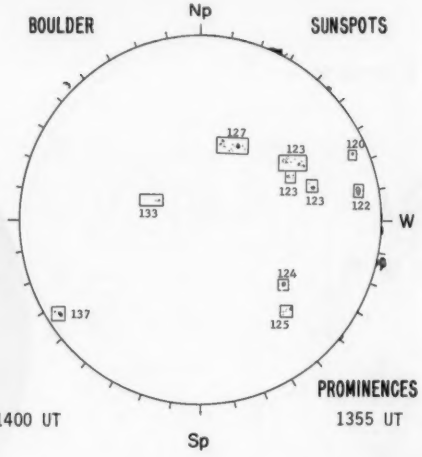
Boulder



Hα

1355 UT

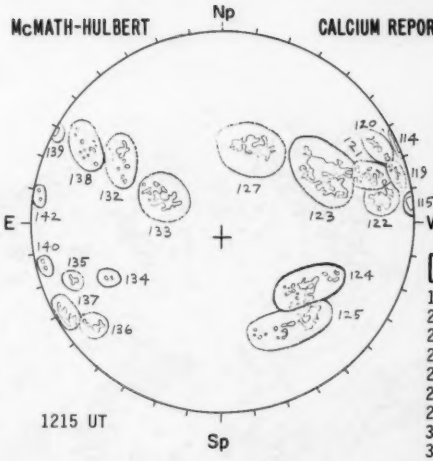
BOULDER SUNSPOTS



PROMINENCES

1400 UT 1355 UT

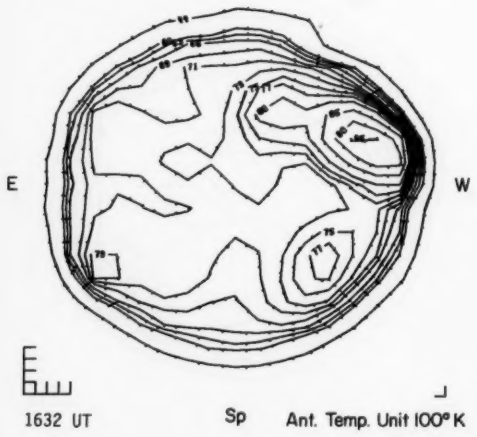
McMATH-HULBERT CALCIUM REPORT



1215 UT

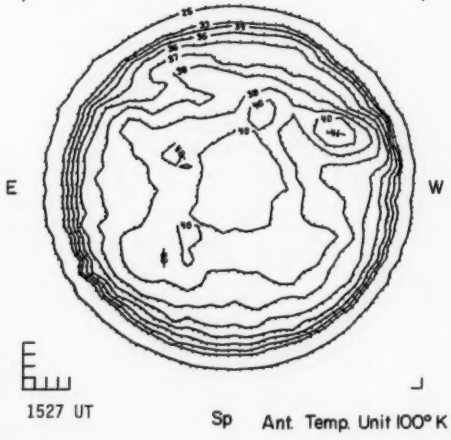
POOR	M
15-	1100-3.0
20-	1800-2.5
21-	1300-2.5
22-	3000-3.0
23-	5000-3.5
24	1000-2.5
27-	2100-3.0
33-	1200-2.5
35-	0400-2.5
37-	1900-2.5
39-	0500-2.5

NOSC LA POSTA Np 2.0 CM



1632 UT Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



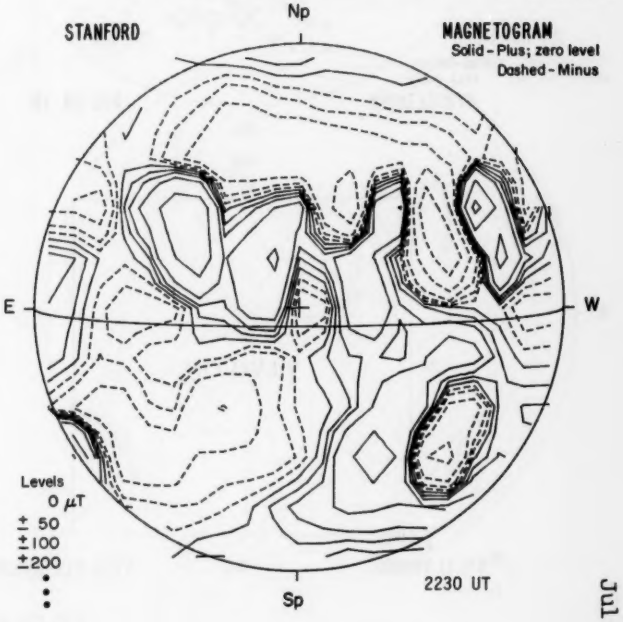
1527 UT Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2230 UT

73

Jul 79

JULY 13, 1979 (P = 2.46, B_o = 4.10, L_o = 55.18)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

2321 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E

W

Levels
± 5
± 10
± 20
± 40
± 80

16.25-18.14 UT

Sp

Sp

Sp

13

Big Bear

Np

Hα

E

W

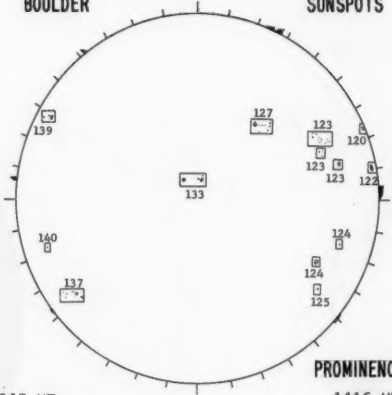
2023 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

PROMINENCES

1345 UT

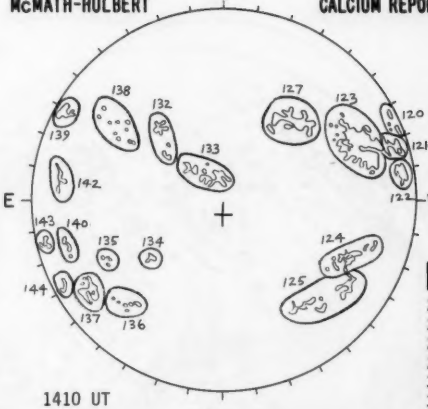
1416 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

1410 UT

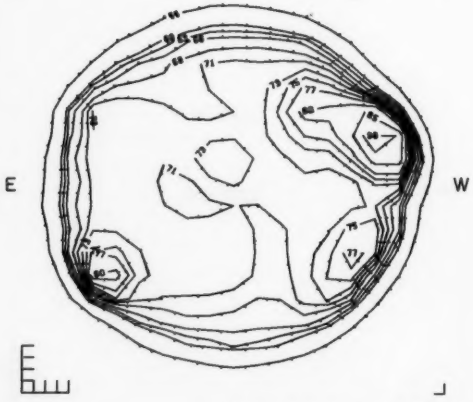
Sp

FAIR	S
22-	2400-3.0
23-	5500-3.5
24-	1200-2.5
27-	2400-3.0
37-	1800-3.0
39-	1600-3.0
40-	0300-2.5

NOSC LA POSTA

Np

2.0 CM



E

W

1703 UT

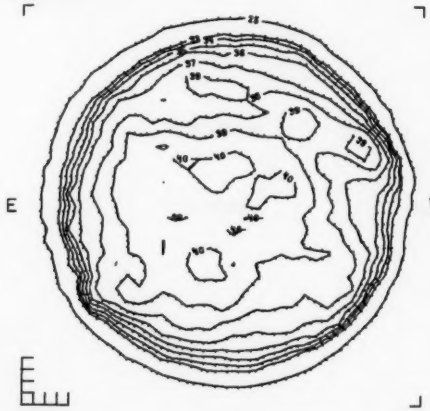
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1600 UT

Sp

Ant. Temp. Unit 100° K

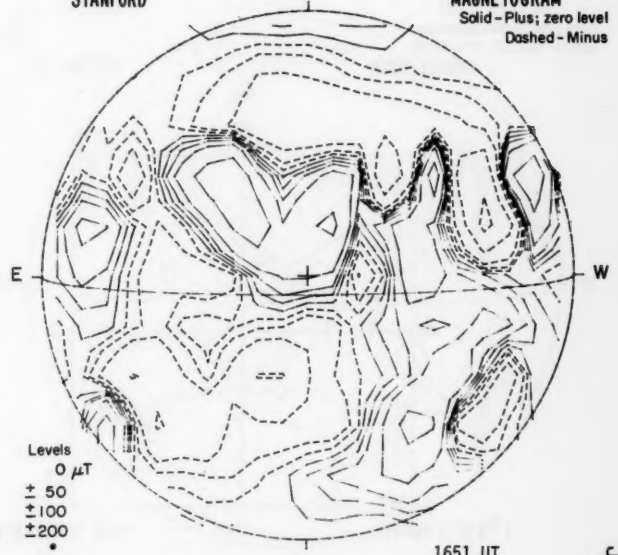
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

1651 UT

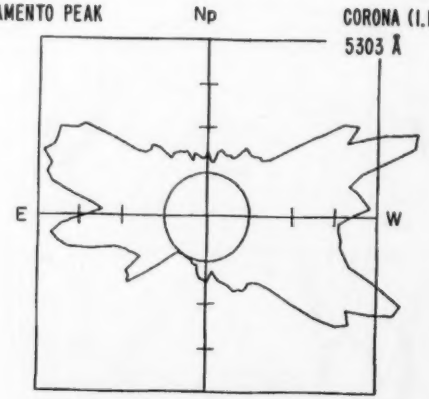
Sp

75

Jul 79

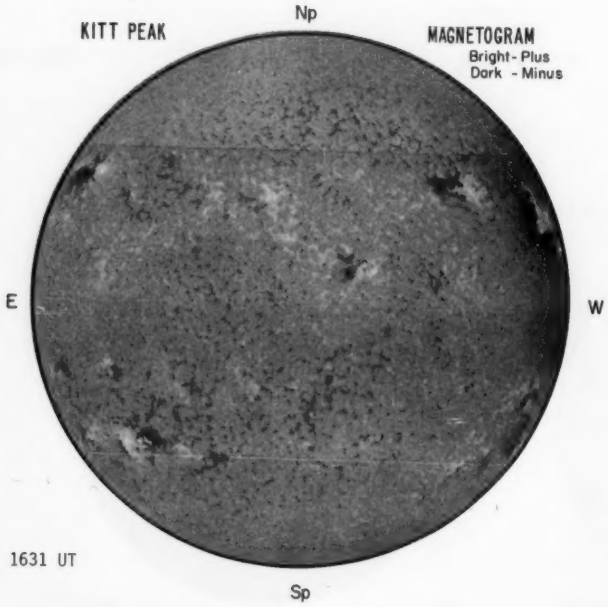
JULY 14, 1979 (P = 2.91, B_o = 4.20, L_o = 41.95)

SACRAMENTO PEAK



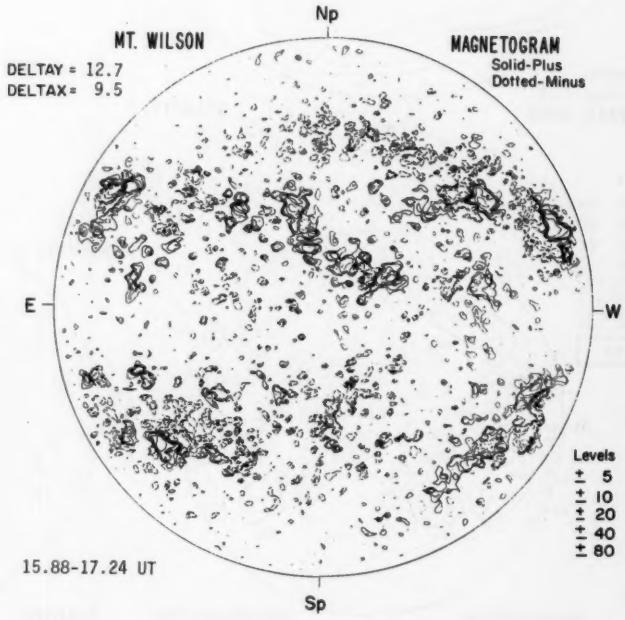
1442 UT

KITT PEAK



1631 UT

MT. WILSON



15.88-17.24 UT

Sp

Sp

14

Boulder

Np

Hα

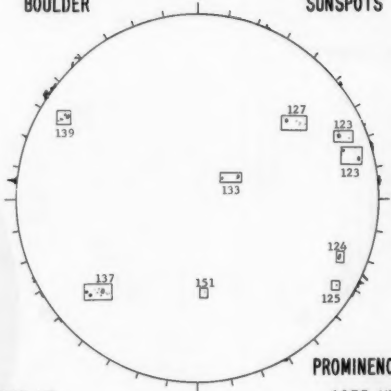
E W

1355 UT

Sp

BOULDER SUNSPOTS

Np



E W

1335 UT

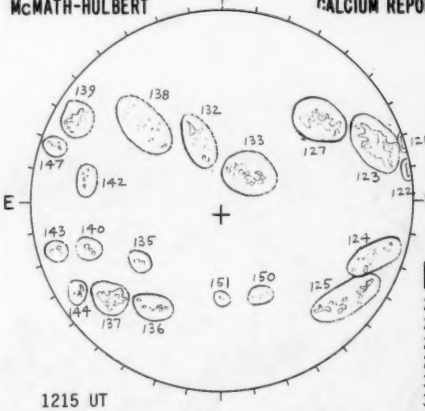
Sp

PROMINENCES

1355 UT

McMATH-HULBERT

Np



E W

1215 UT

Sp

CALCIUM REPORT

POOR	M
22- 0900-3.0	
23- 5300-3.5	
24- 1200-2.5	
27- 2500-3.0	
37- 1800-3.0	
39- 2000-3.0	
40- 0300-2.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp Ant. Temp. Unit 100° K

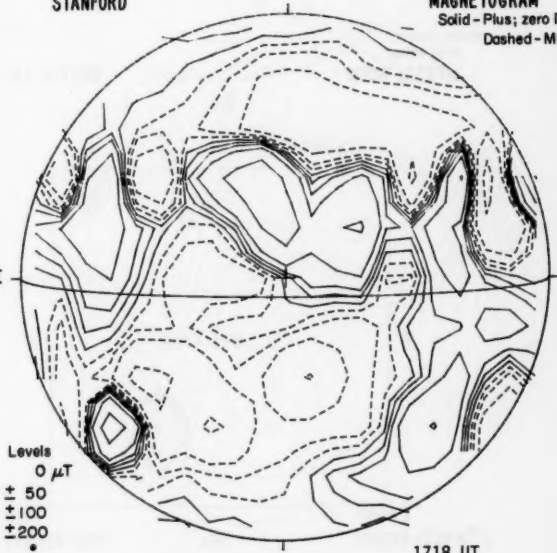
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1718 UT

Sp

77

Jul 79

JULY 15, 1979 (P = 3.36, B_o = 4.30, L_o = 28.72)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

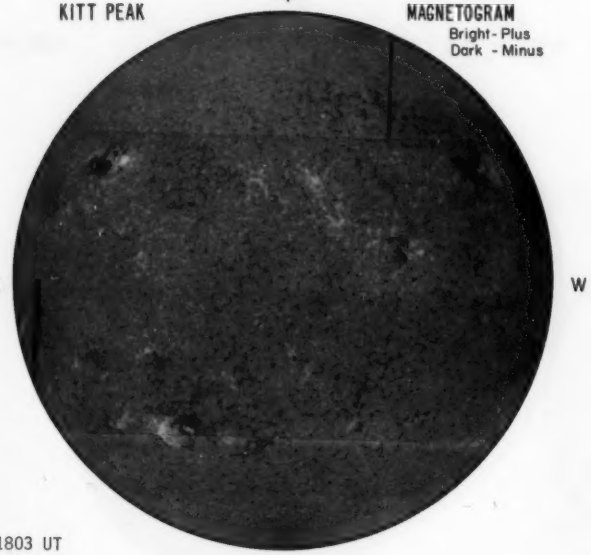
KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W



Sp

1803 UT

MT. WILSON

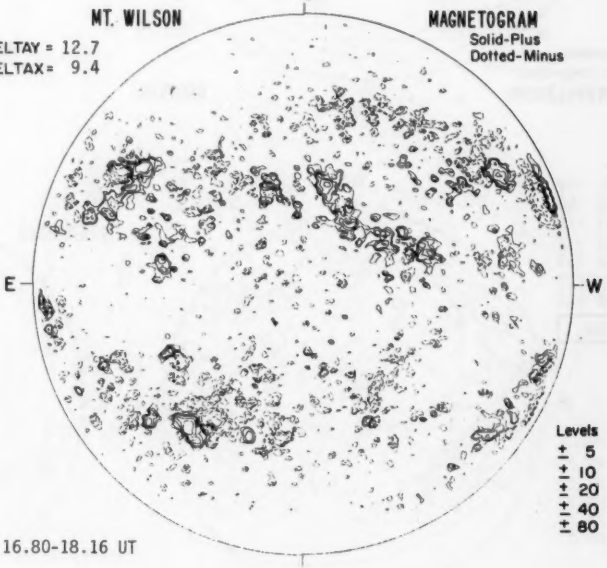
Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.4

E

W



Levels
± 5
± 10
± 20
± 40
± 80

Sp

16.80-18.16 UT

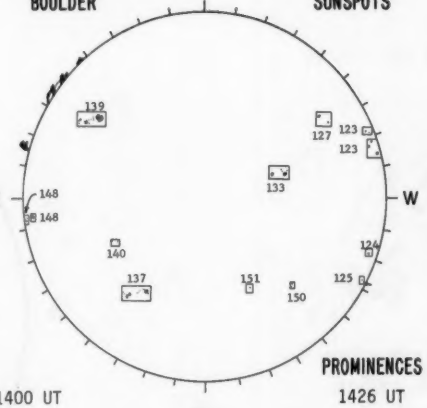
15

Big Bear

2005 UT

Hα

BOULDER SUNSPOTS

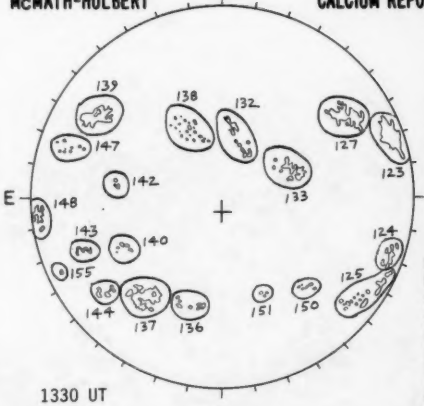


1400 UT

PROMINENCES

1426 UT

McMATH-HULBERT CALCIUM REPORT



1330 UT

FAIR	M
23-	5300-3.5
27-	2800-3.0
33-	1000-2.5
37-	2000-3.0
39-	2000-3.0
40-	0300-3.0
48-	2000-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

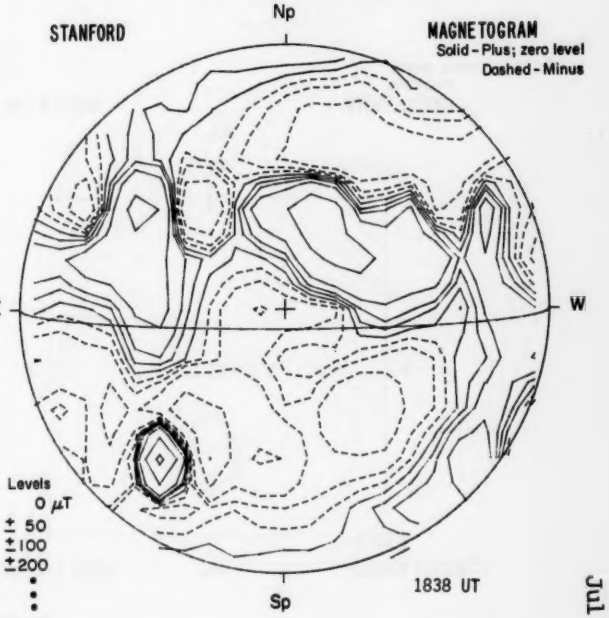
NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1838 UT

79 Jul 79

JULY 16, 1979 (P = 3.80, B_o = 4.40, L_o = 15.48)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

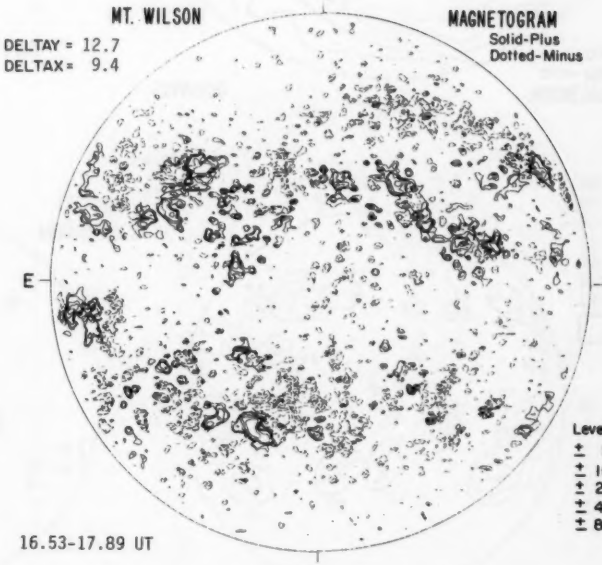
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

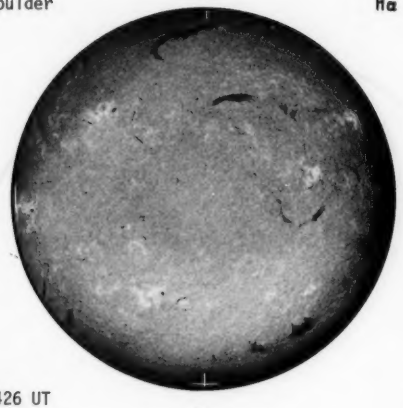
DELTAY = 12.7
DELTAX = 9.4



16.53-17.89 UT

16

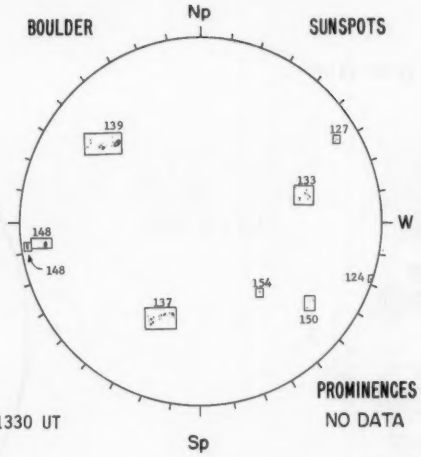
Boulder



Hα

1426 UT

BOULDER SUNSPOTS

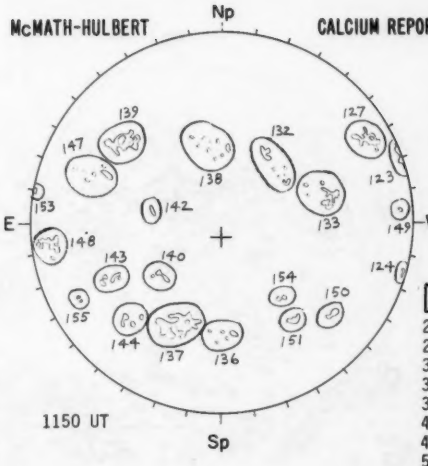


1330 UT

PROMINENCES

NO DATA

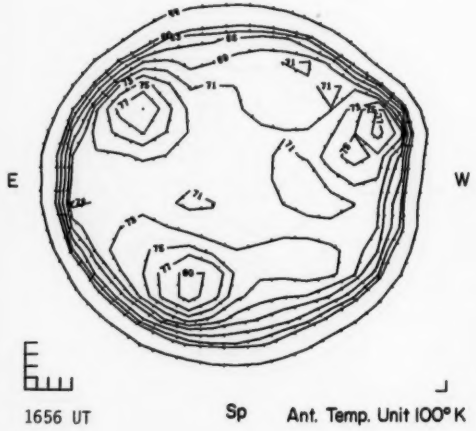
McMATH-HULBERT CALCIUM REPORT



1150 UT

FAIR	S
23- 0800-2.5	
27- 2100-3.0	
33- 1000-2.5	
37- 2500-3.0	
39- 2400-3.0	
40- 0300-2.5	
48- 2000-2.5	
50- 0500-2.5	

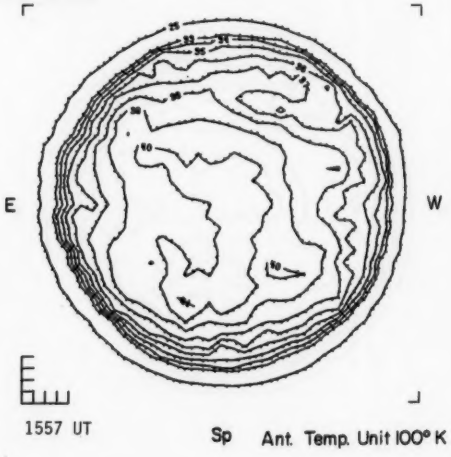
NOSC LA POSTA Np 2.0 CM



1656 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



1557 UT

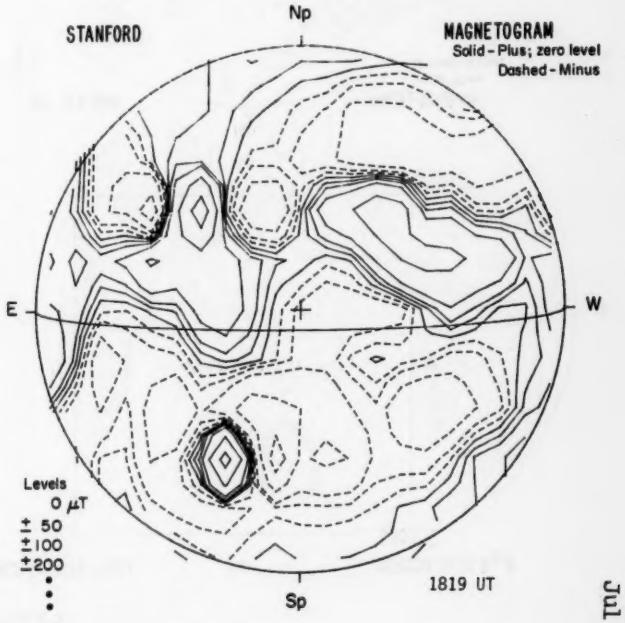
Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1819 UT

JULY 17, 1979 (P = 4.24, B_o = 4.49, L_o = 2.25)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E — NO DATA — W

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.7
DELTAX = 9.7

E — W

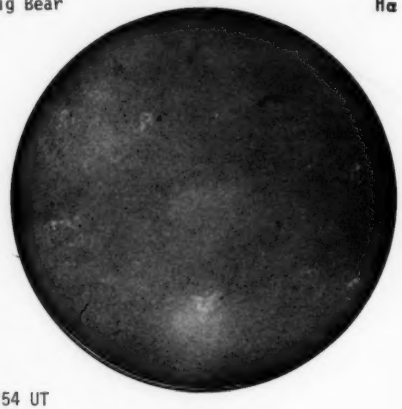
Levels
± 5
± 10
± 20
± 40
± 80

18.43-19.33 UT

Sp

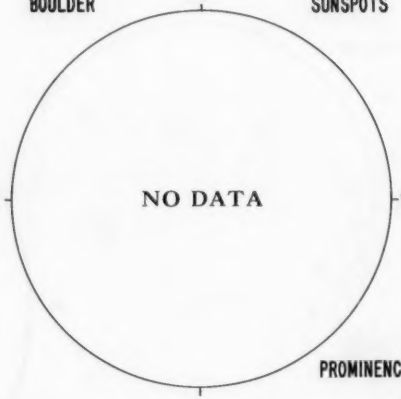
17

Big Bear Hα



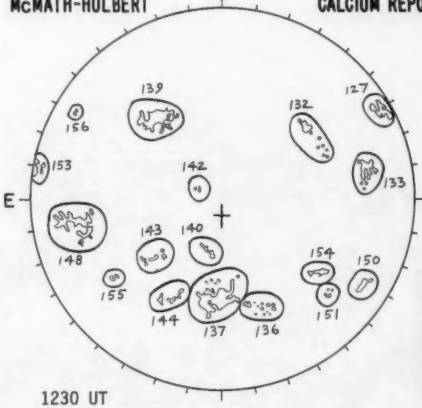
1754 UT

BOULDER SUNSPOTS



PROMINENCES

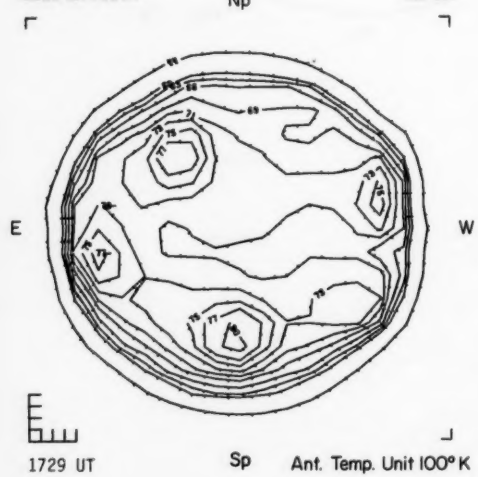
McMATH-HULBERT CALCIUM REPORT



1230 UT

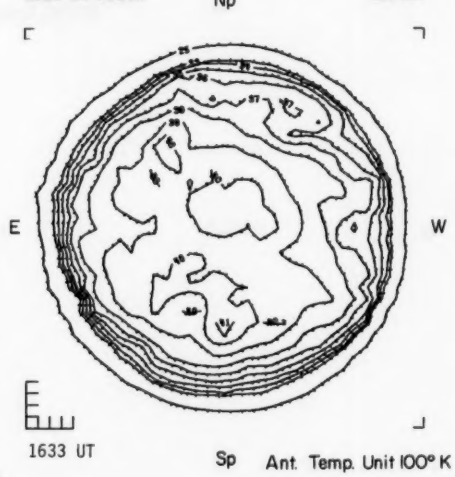
GOOD	S
32-	0800-2.5
33-	1300-3.0
37-	2400-3.0
39-	2000-3.0
48-	2500-2.5
50-	0900-2.5
54-	0400-2.5

NOSC LA POSTA 2.0 CM



1729 UT Ant. Temp. Unit 100° K

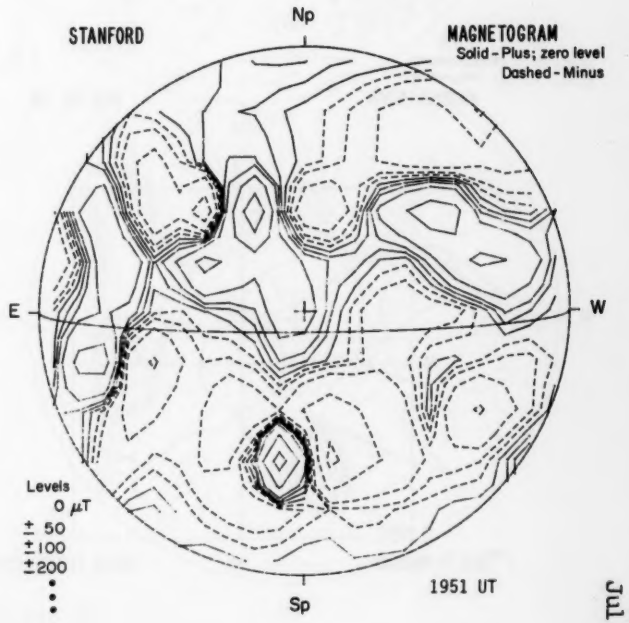
NOSC LA POSTA 8.6 MM



1633 UT Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

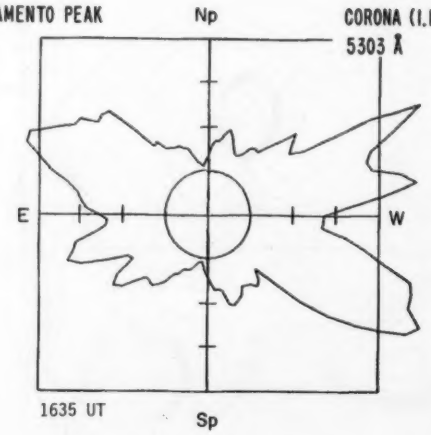


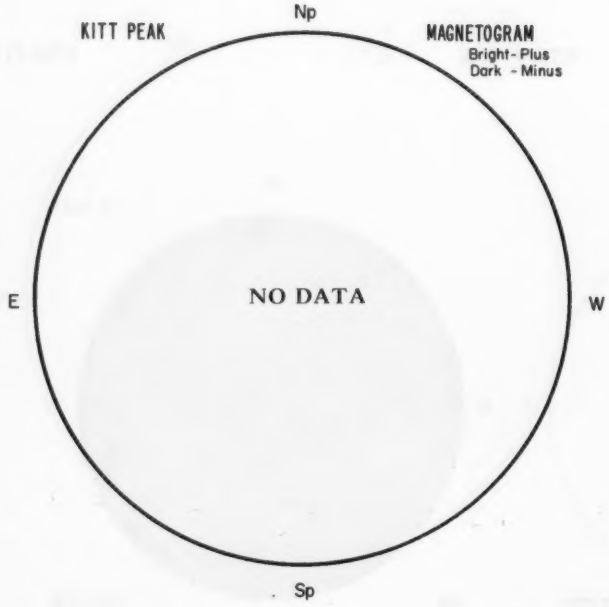
1951 UT

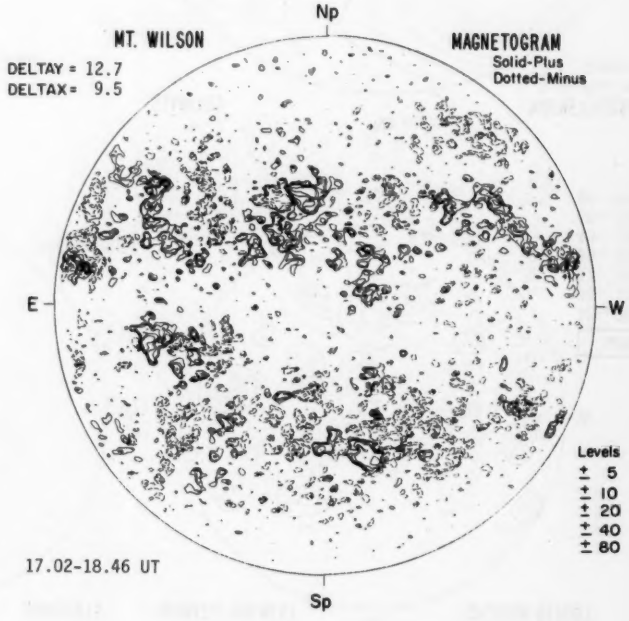
83
Jul 79

JULY 18, 1979 (P = 4.68, B_o = 4.59, L_o = 349.02)

SACRAMENTO PEAK

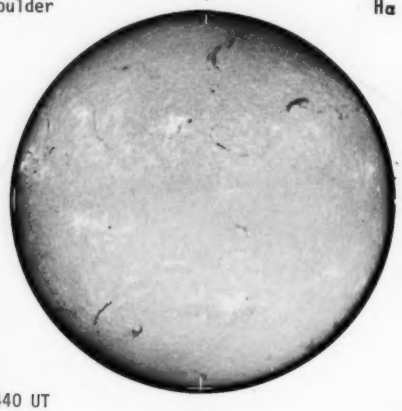






18

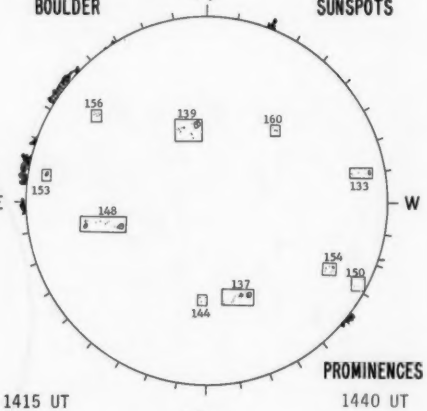
Boulder



Hα

1440 UT

BOULDER

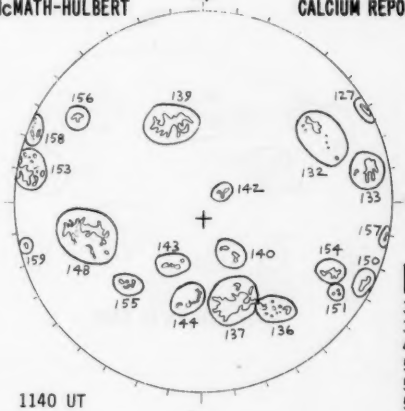


SUNSPOTS

PROMINENCES

1415 UT 1440 UT

McMATH-HULBERT



1140 UT

CALCIUM REPORT

FAIR	M
37-	2500-3.0
39-	2200-3.0
48-	2500-2.5
50-	0900-2.5
53-	3300-2.5
54-	0500-3.0
56-	0400-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E WEATHER W

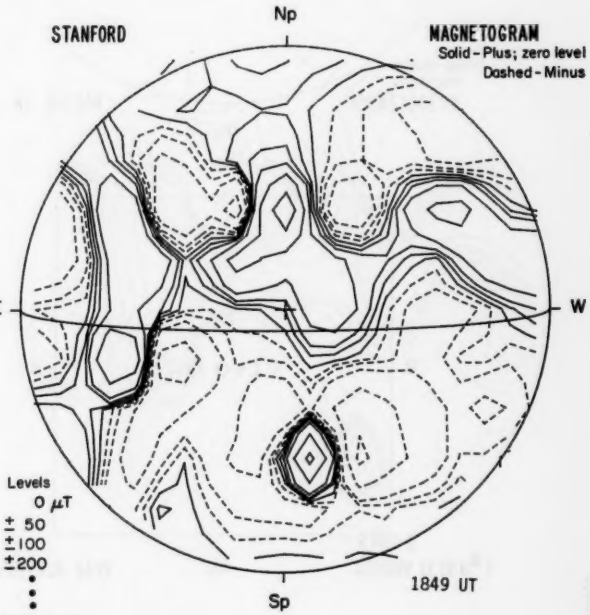
---- UT Sp Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

±100

±200

1849 UT

85 Jul 79

JULY 19, 1979 (P = 5.12, B_o = 4.68, L_o = 335.79)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

Np

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

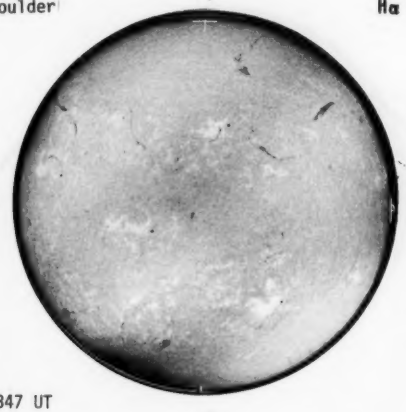
E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

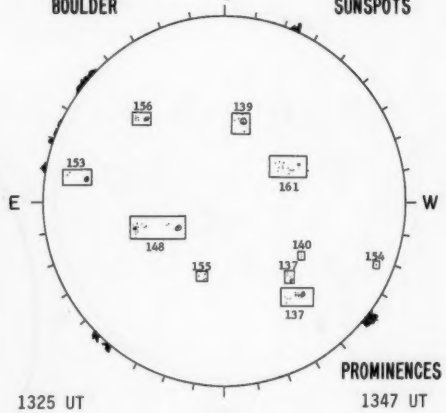
19

Boulder Np Hα



1347 UT

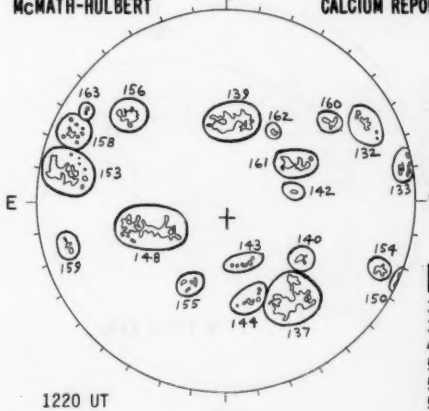
BOULDER Np SUNSPOTS



PROMINENCES

1325 UT 1347 UT

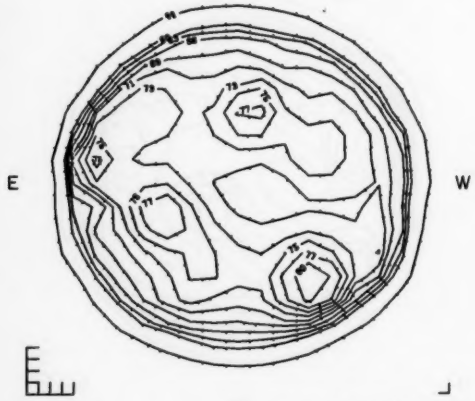
McMATH-HULBERT Np CALCIUM REPORT



1220 UT

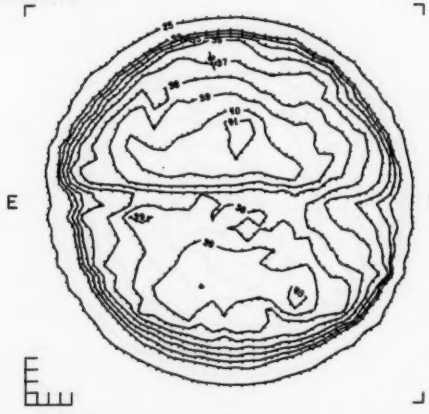
GOOD	M
37- 3000-3.5	
39- 2300-3.5	
48- 2500-2.5	
53- 3700-2.5	
54- 0500-2.5	
56- 0900-3.0	
60- 0300-2.5	
61- 0900-3.5	

NOSC LA POSTA Np 2.0 CM



1623 UT Ant. Temp. Unit 100° K

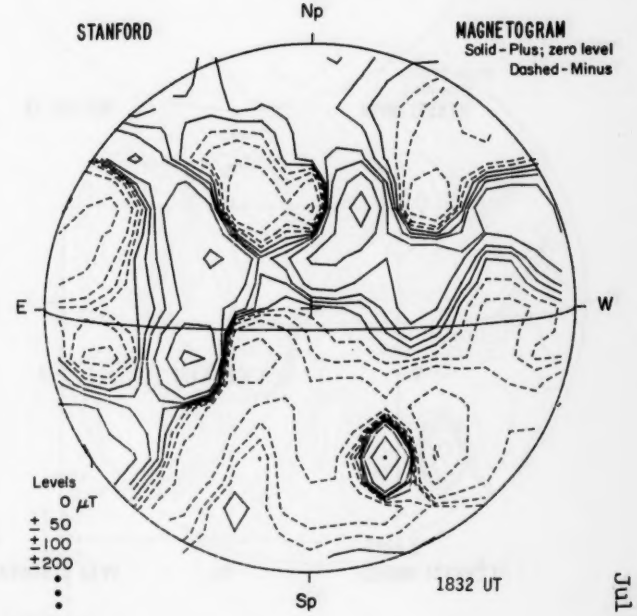
NOSC LA POSTA Np 8.6 MM



1510 UT Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



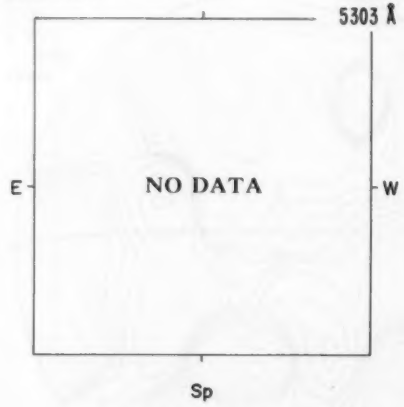
1832 UT

87 Jul 79

JULY 20, 1979 (P = 5.56, B_o = 4.77, L_o = 322.56)

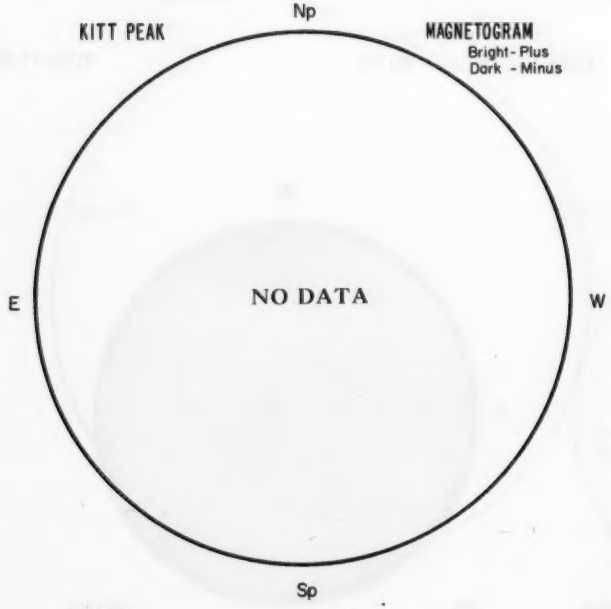
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

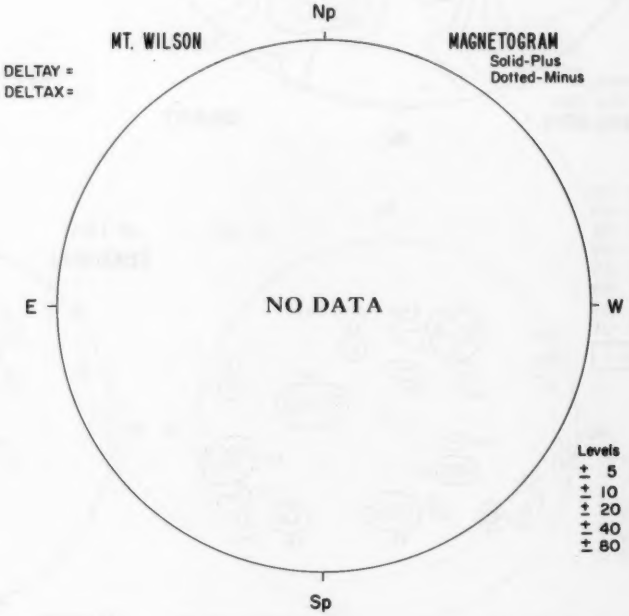
MAGNETOGRAM
Bright - Plus
Dark - Minus



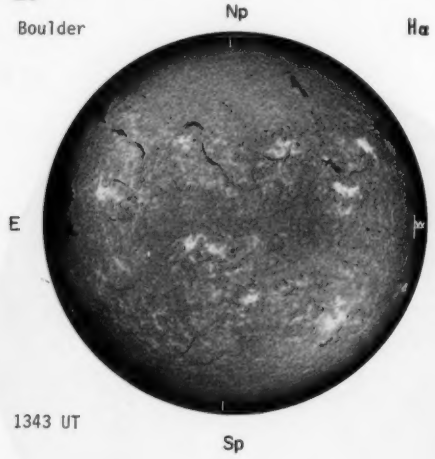
MT. WILSON

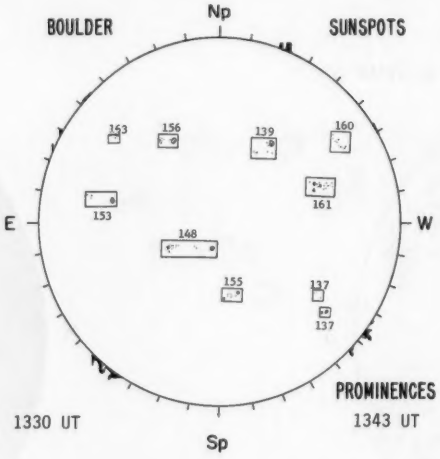
DELTAY =
DELTAX =

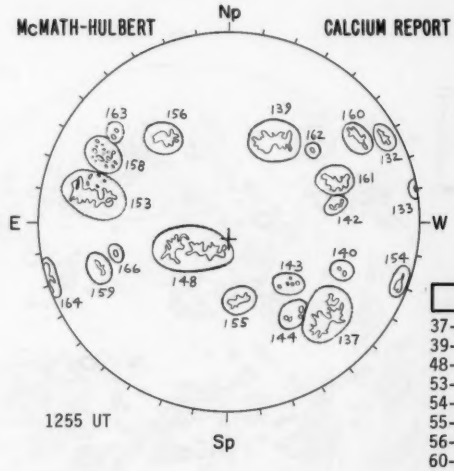
MAGNETOGRAM
Solid-Plus
Dotted-Minus



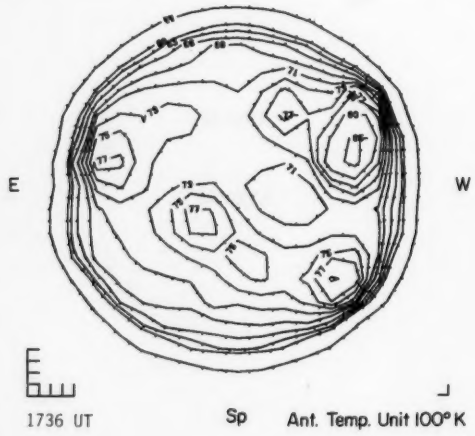
20

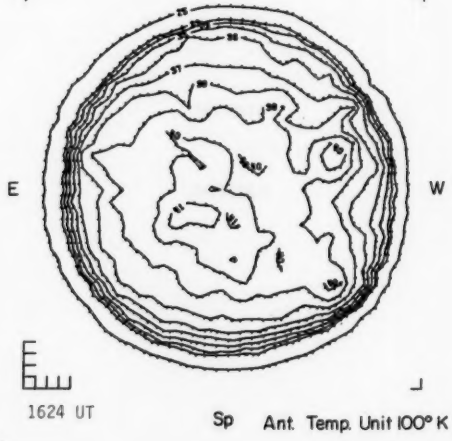


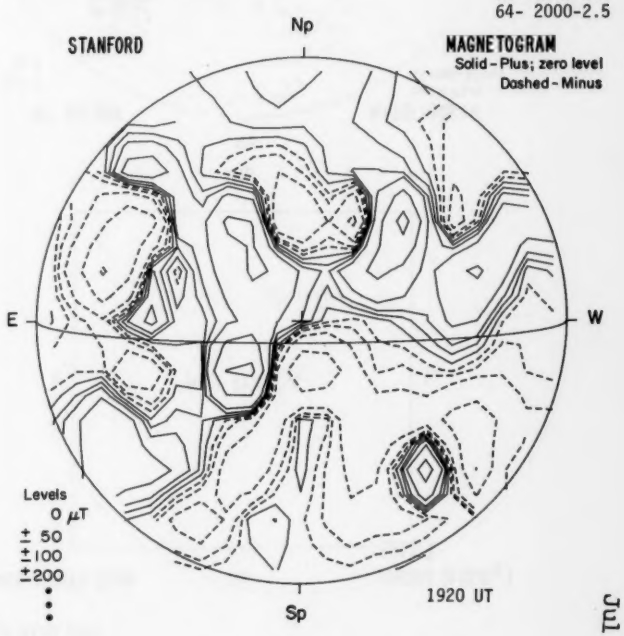




GOOD	M
37-	3000-3.0
39-	2300-3.0
48-	2500-3.0
53-	3700-2.5
54-	0700-3.0
55-	0800-3.0
56-	1200-3.0
60-	0900-3.5
61-	1600-3.5
64-	2000-2.5







89
Jul 79

JULY 21, 1979 (P = 5.99, B_o = 4.86, L_o = 309.33)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

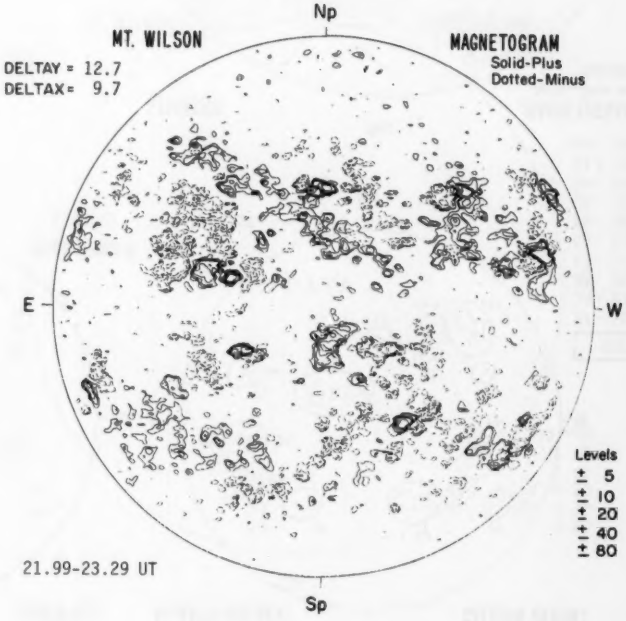
MAGNETOGRAM
Bright - Plus
Dark - Minus

E

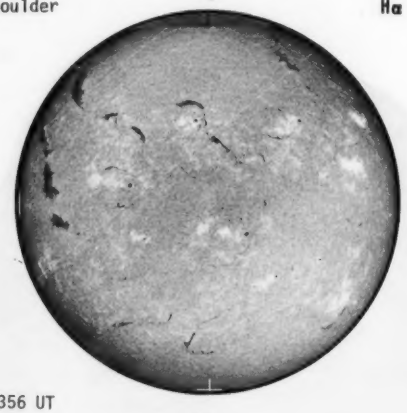
W

1519 UT

Sp



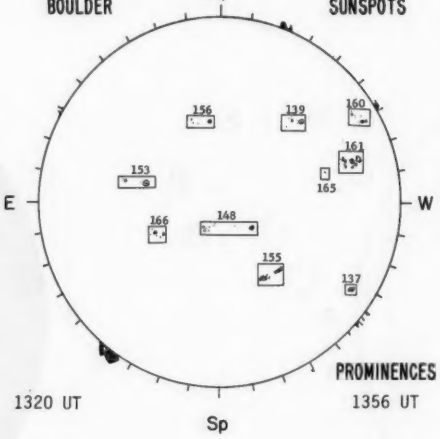
Boulder



Hα

1356 UT

BOULDER SUNSPOTS

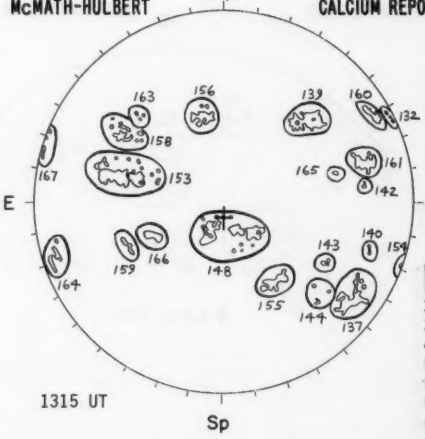


1320 UT

PROMINENCES

1356 UT

McMATH-HULBERT CALCIUM REPORT



1315 UT

GOOD	S
37-	3000-3.0
39-	2300-3.0
48-	2500-3.0
53-	3300-2.5
55-	1000-3.0
56-	1200-3.5
60-	1000-3.0
61-	1600-3.5
64-	1700-2.5
66-	0500-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

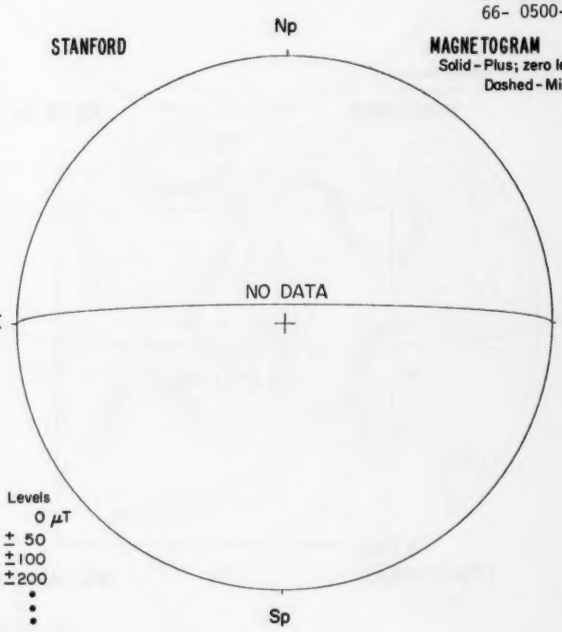
NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
±100
±200

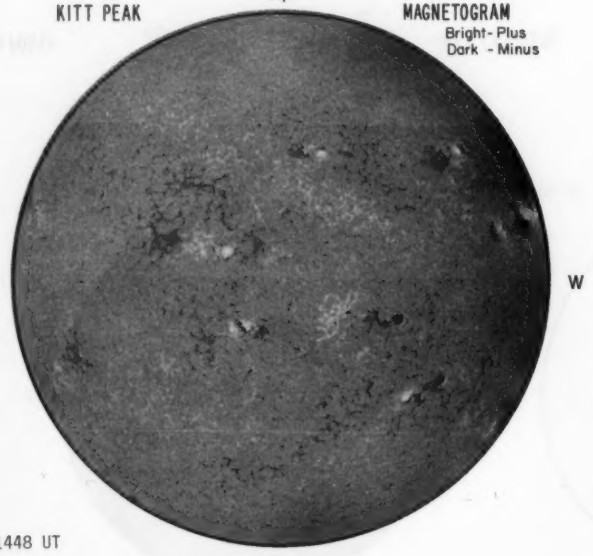
JULY 22, 1979 (P = 6.43, B_o = 4.95, L_o = 296.10)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1448 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

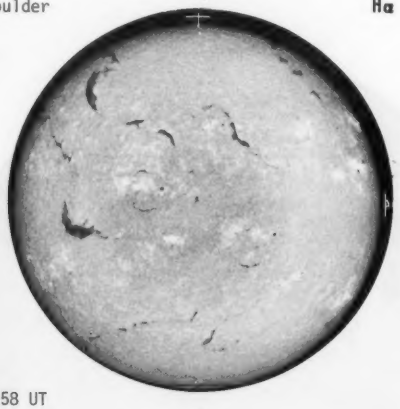
Sp

22

Boulder

Np

Hα



E W

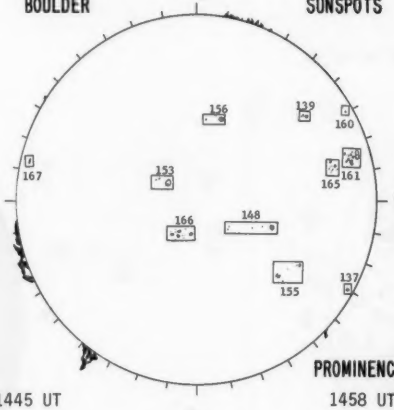
1458 UT

Sp

BOULDER

Np

SUNSPOTS



E W

1445 UT

Sp

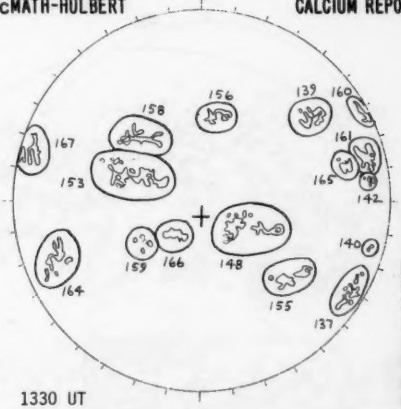
PROMINENCES

1458 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E W

1330 UT

Sp

GOOD	S
37-	2600-3.0
39-	2300-3.0
53-	3000-2.0
55-	1200-3.0
60-	1000-2.5
61-	2100-3.5
64-	1800-2.5
65-	0800-3.0
66-	0900-2.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

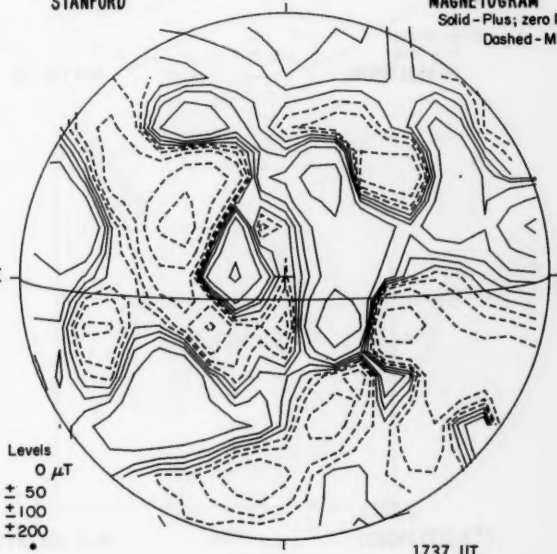
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1737 UT

Sp

93

Jul 79

JULY 23, 1979 (P = 6.86, B_o = 5.04, L_o = 282.87)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

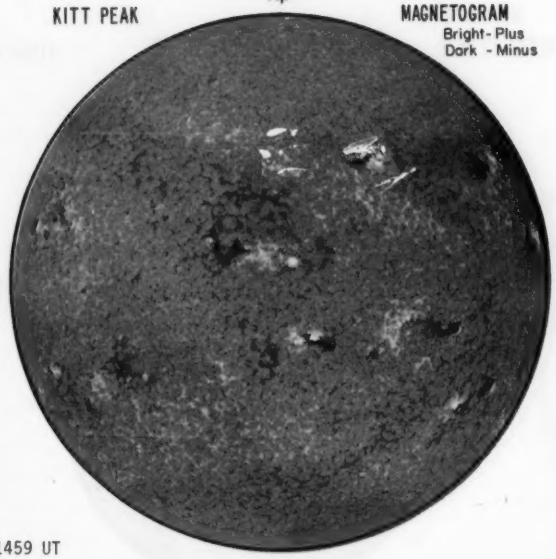
W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1459 UT

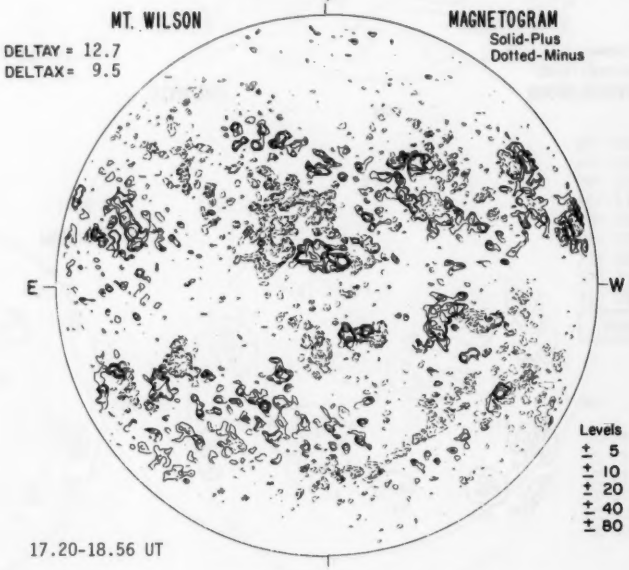
Sp

MT. WILSON

Np

DELTAY = 12.7
DELTAX = 9.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



E

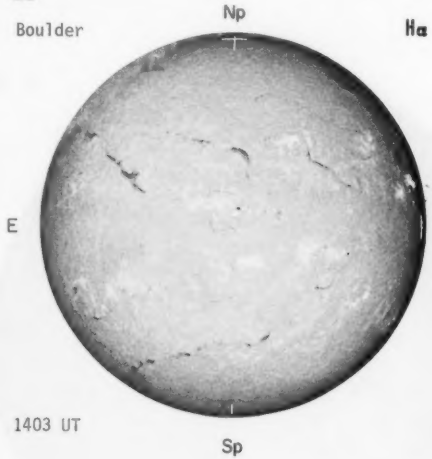
W

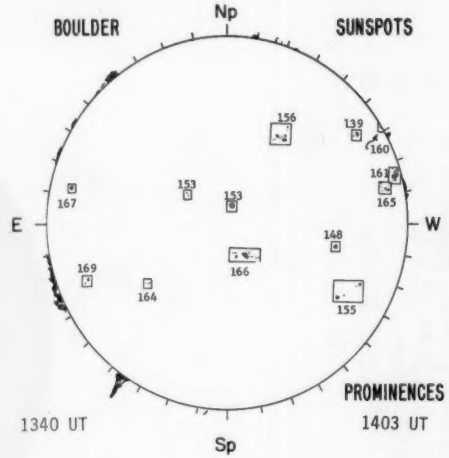
Levels
± 5
± 10
± 20
± 40
± 80

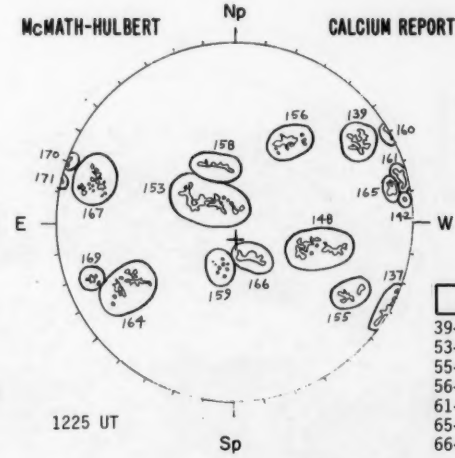
17.20-18.56 UT

Sp

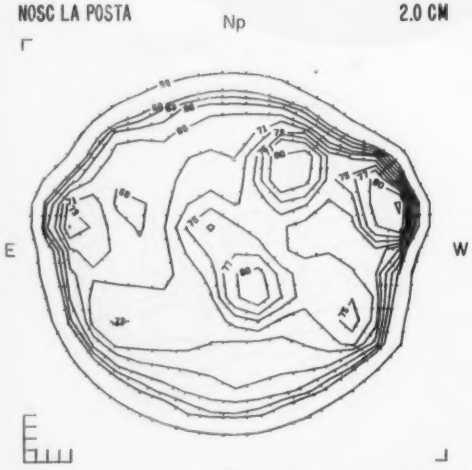
23

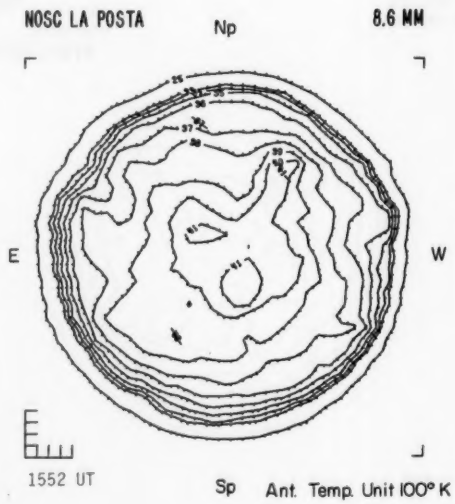


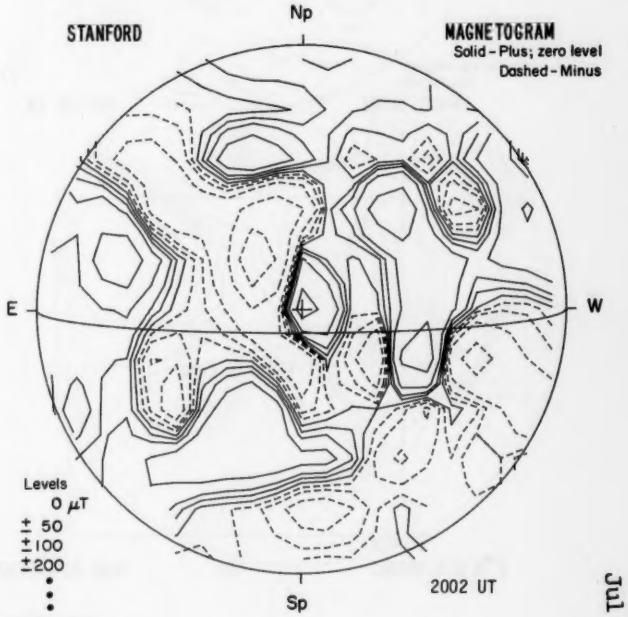




FAIR	M
39-	2000-3.0
53-	2700-2.5
55-	1000-3.0
56-	1100-3.0
61-	2700-3.5
65-	1300-3.5
66-	0900-3.0





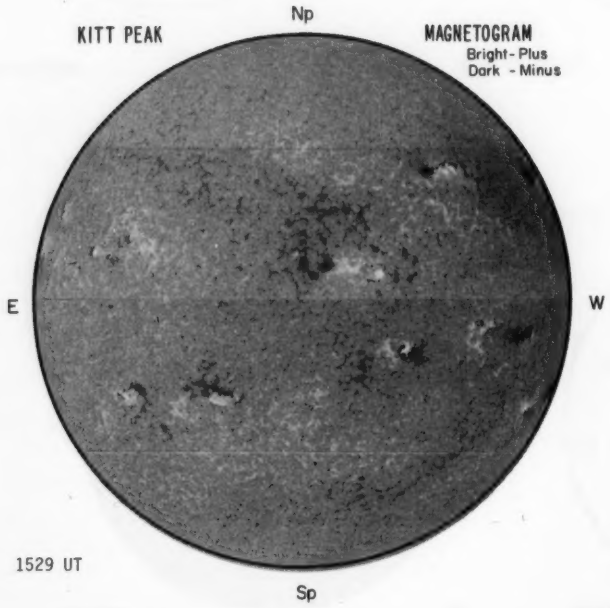


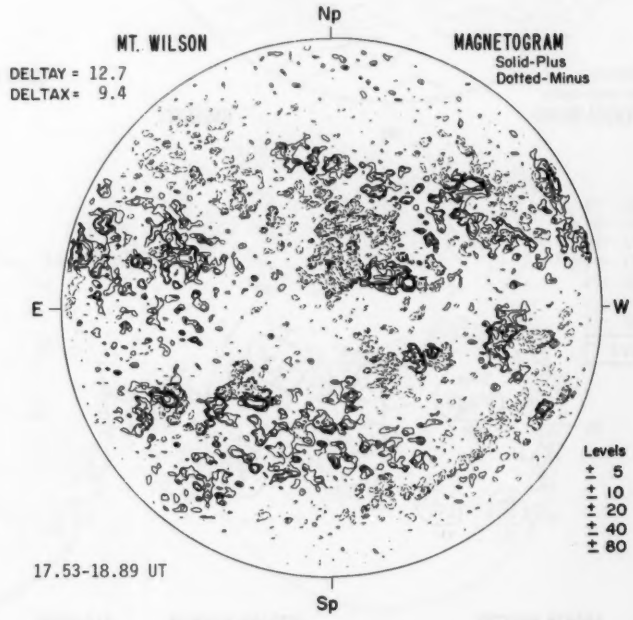
JULY 24, 1979 (P = 7.28, B_o = 5.12, L_o = 269.64)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

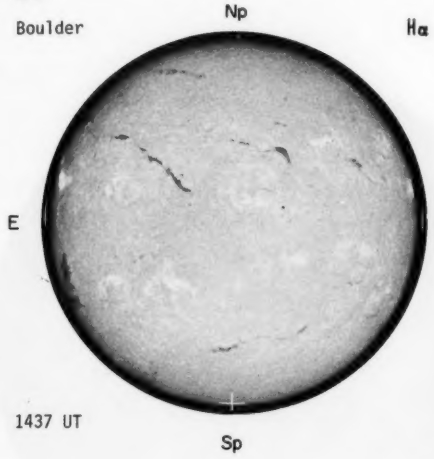
E NO DATA W

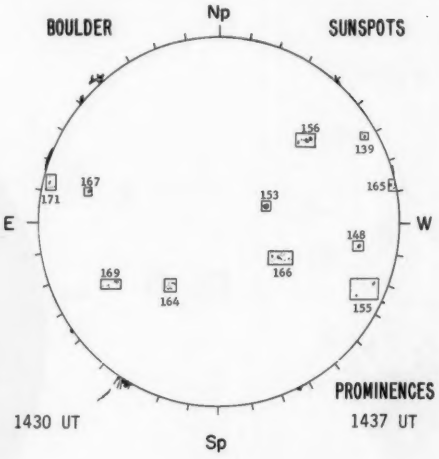
Sp

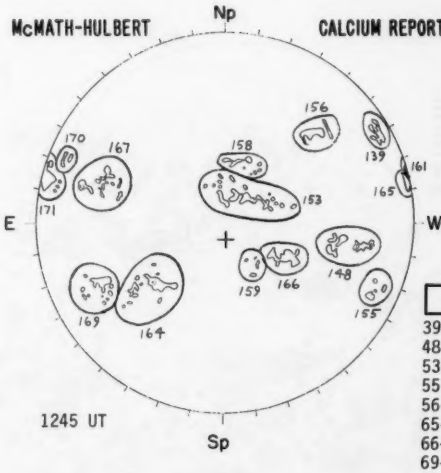




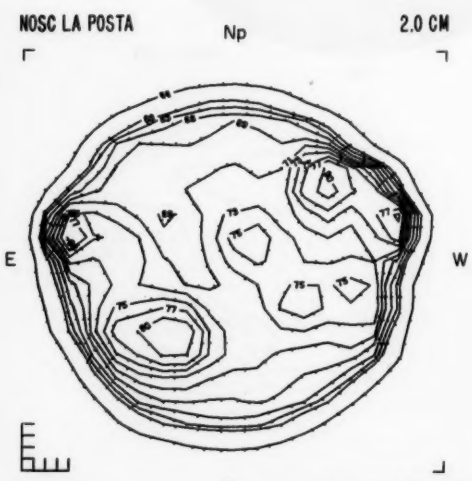
24

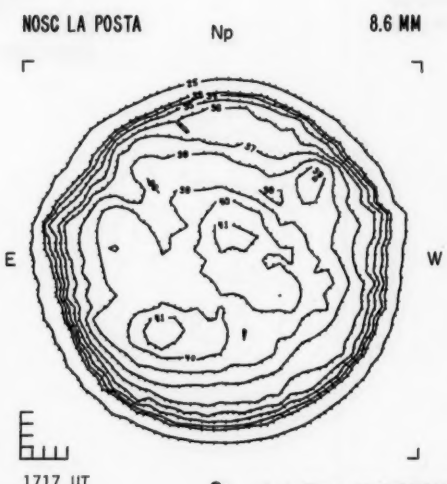


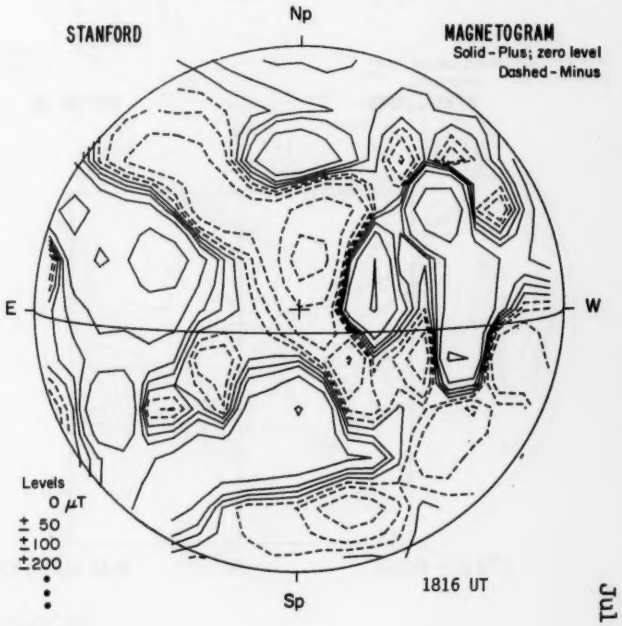




FAIR	M
39- 1800-3.0	
48- 2000-2.5	
53- 2300-2.5	
55- 0700-2.5	
56- 1300-3.5	
65- 1700-3.5	
66- 1200-3.0	
69- 1100-2.5	
71- 2800-3.5	



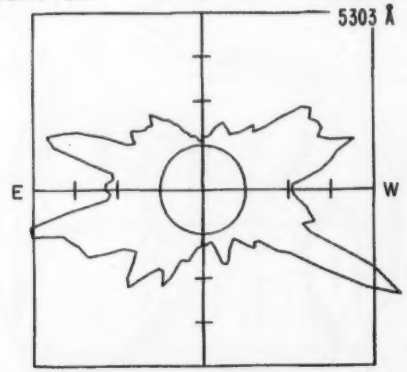




97
Jul 79

JULY 25, 1979 (P = 7.71, B_o = 5.21, L_o = 256.41)

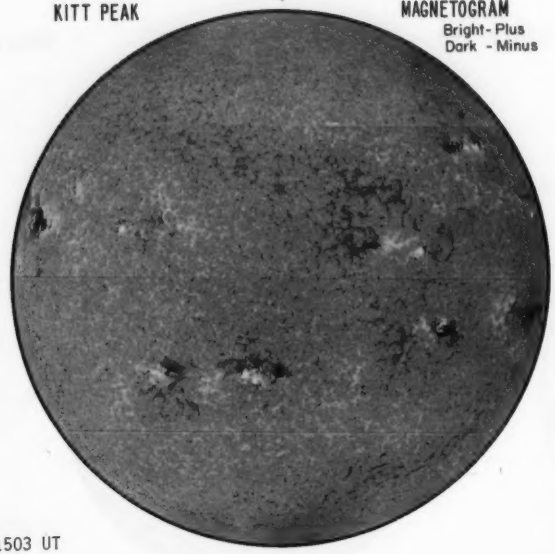
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1353 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



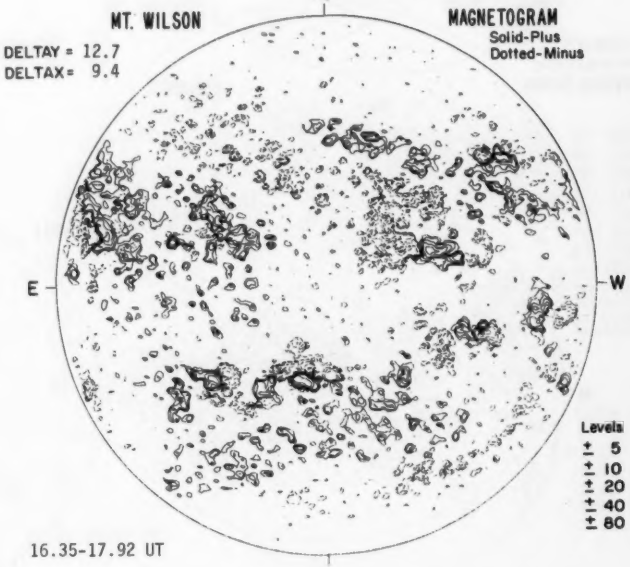
1503 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

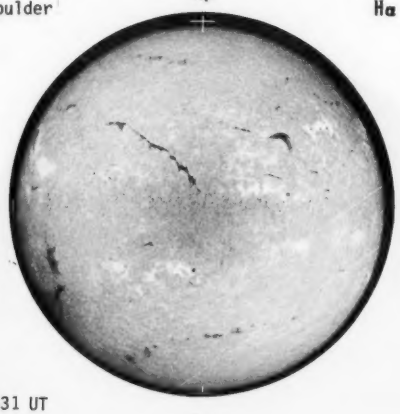
DELTAY = 12.7
DELTAX = 9.4



16.35-17.92 UT

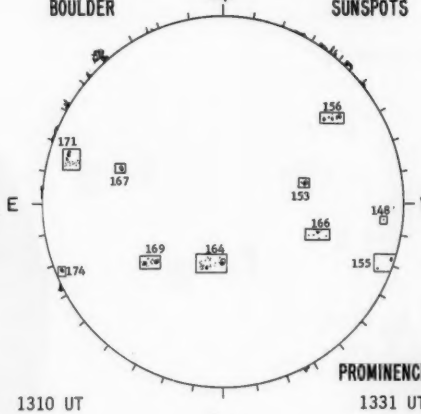
Sp

Boulder Hα



1331 UT

BOULDER SUNSPOTS

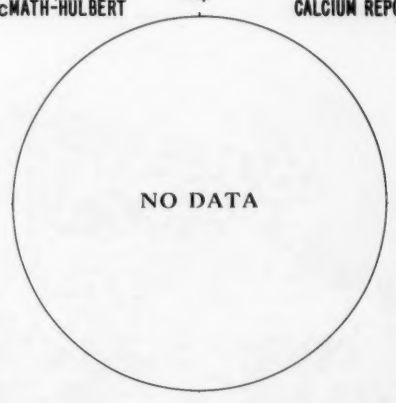


1310 UT

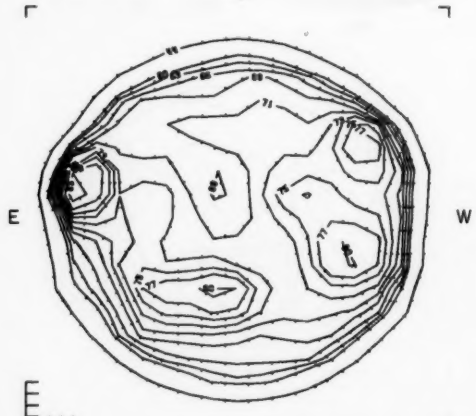
PROMINENCES

1331 UT

McMATH-HULBERT CALCIUM REPORT



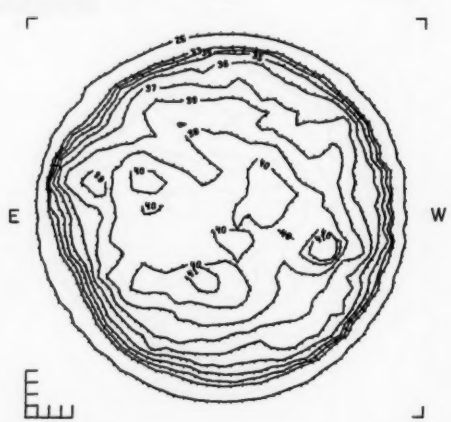
NOSC LA POSTA 2.0 CM



1647 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM



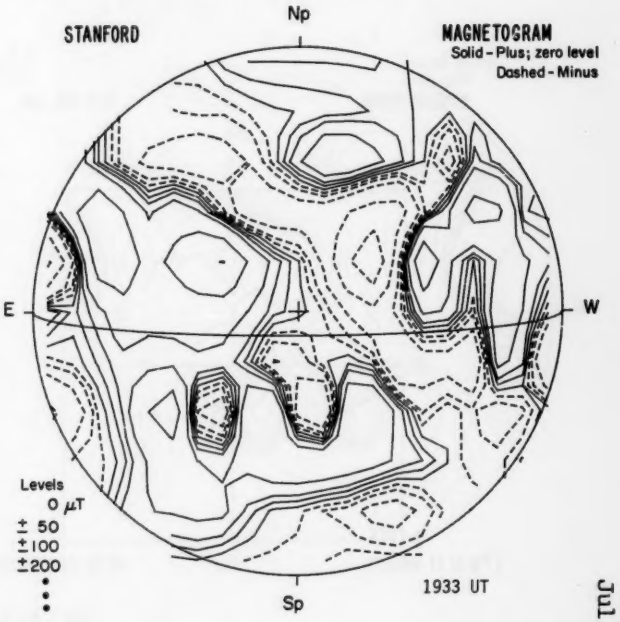
1548 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



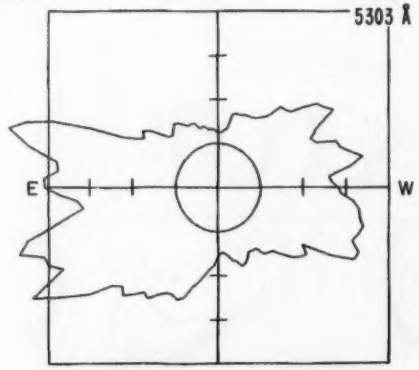
1933 UT

99

Jul 79

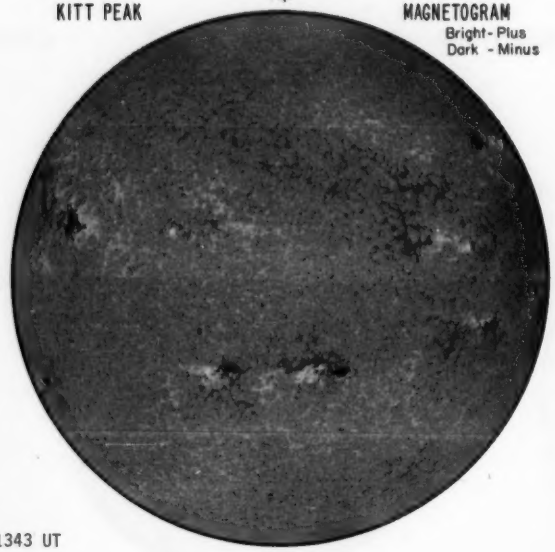
JULY 26, 1979 (P = 8.13, B_o = 5.29, L_o = 243.18)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



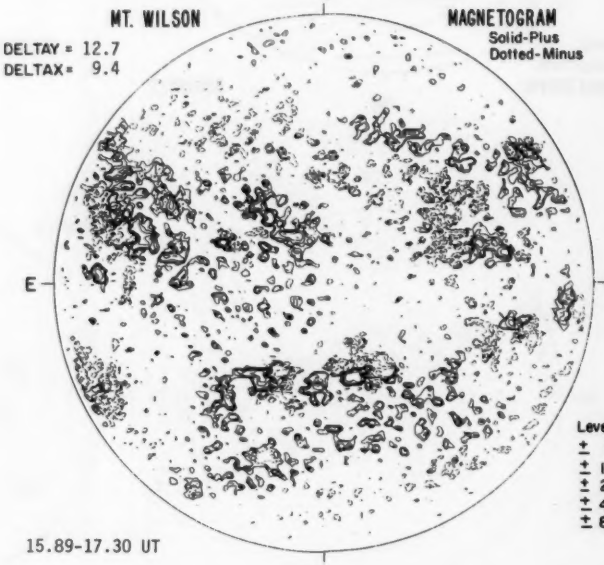
1430 UT Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



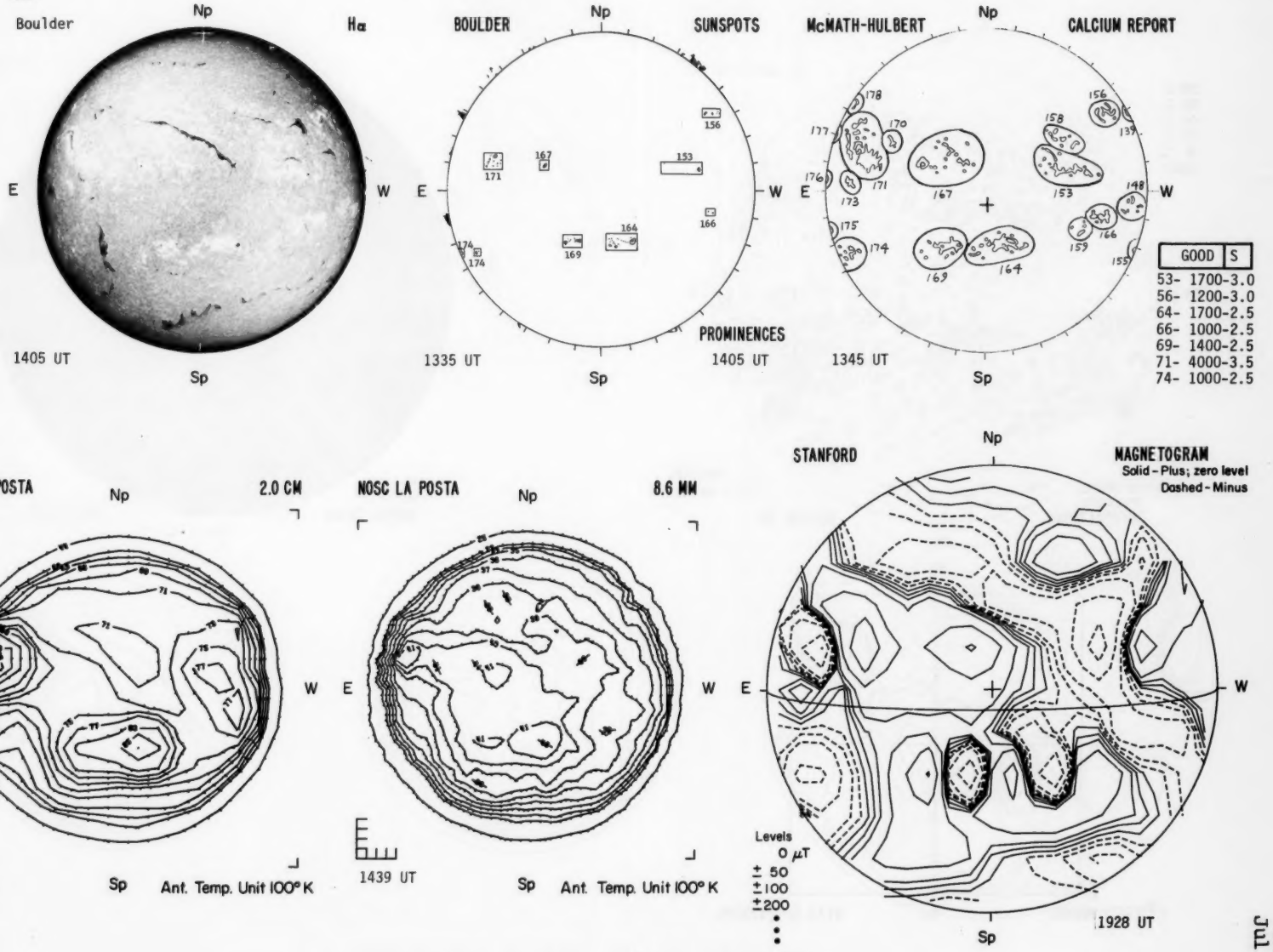
1343 UT Sp

Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.4



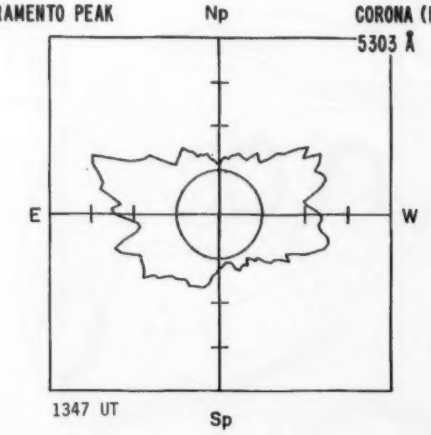
15.89-17.30 UT Sp

26


Boulder
Np
Hα
E
W
Sp
1405 UT
BOULDER
SUNSPOTS
PROMINENCES
1335 UT
1405 UT
McMATH-HULBERT
CALCIUM REPORT
1345 UT
GOOD | S
53- 1700-3.0
56- 1200-3.0
64- 1700-2.5
66- 1000-2.5
69- 1400-2.5
71- 4000-3.5
74- 1000-2.5
NOSC LA POSTA
2.0 CM
1536 UT
Ant. Temp. Unit 100° K
NOSC LA POSTA
8.6 MM
1439 UT
Ant. Temp. Unit 100° K
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Levels
0 μT
± 50
±100
±200
1928 UT

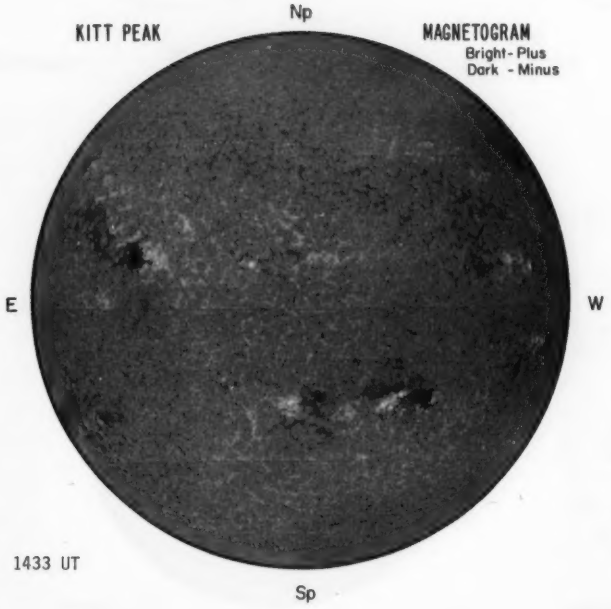
JULY 27, 1979 (P = 8.55, B_o = 5.37, L_o = 229.95)

SACRAMENTO PEAK



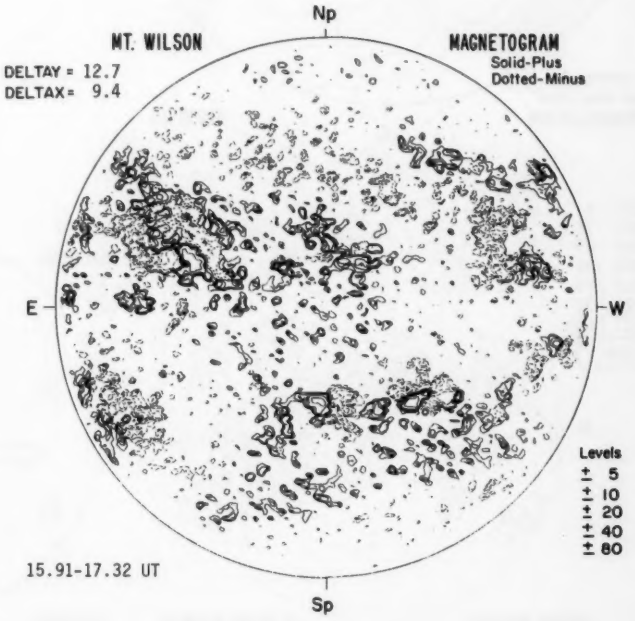
1347 UT

KITT PEAK



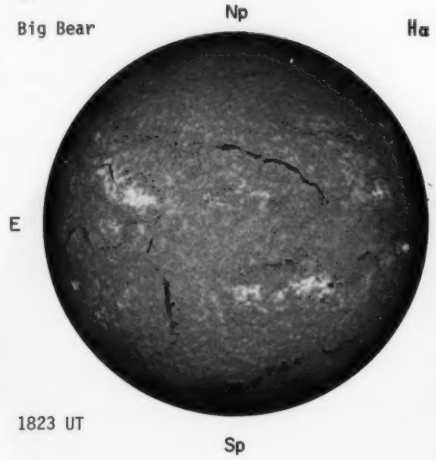
1433 UT

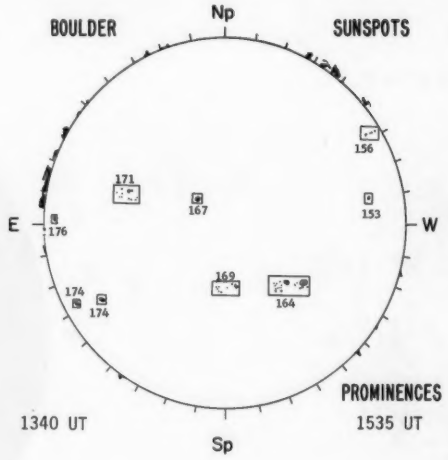
MT. WILSON

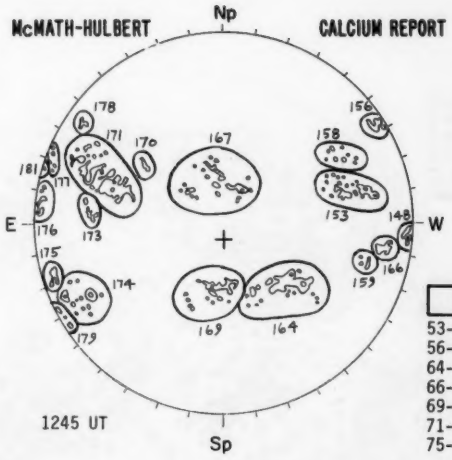


15.91-17.32 UT

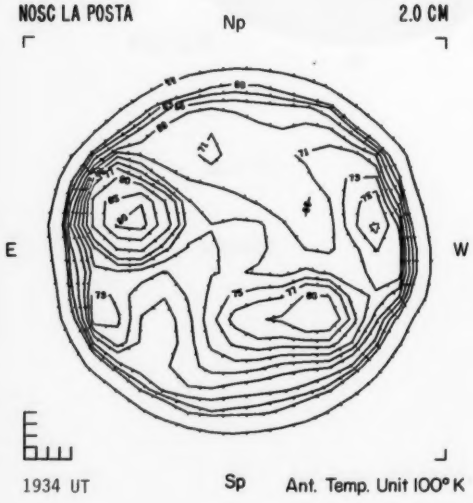
27

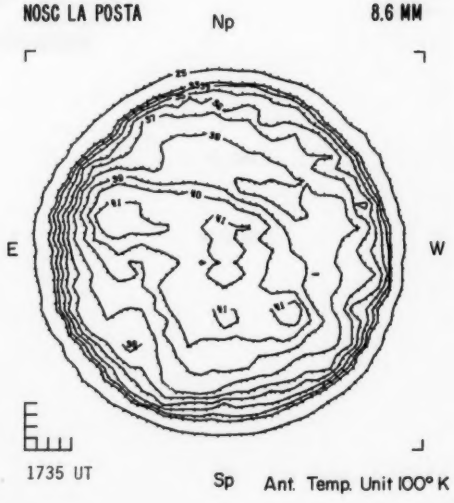


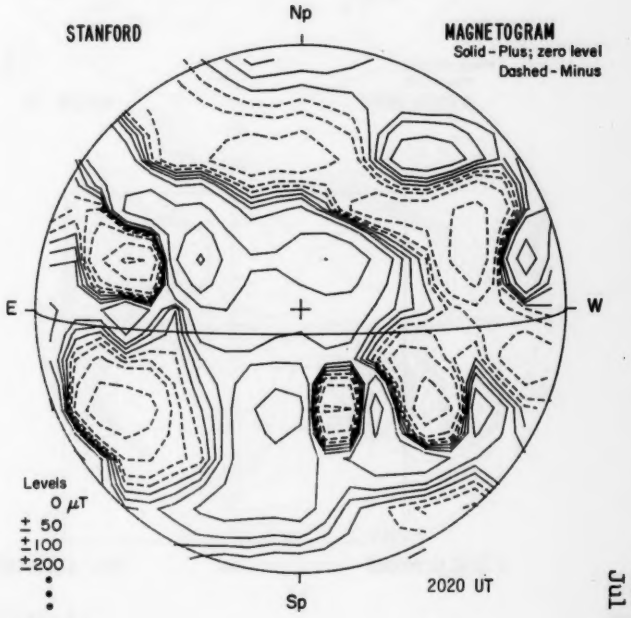




GOOD	S
53- 1900-3.0	
56- 1300-2.5	
64- 1900-3.0	
66- 0900-2.5	
69- 1400-2.5	
71- 4200-3.5	
75- 1000-2.5	



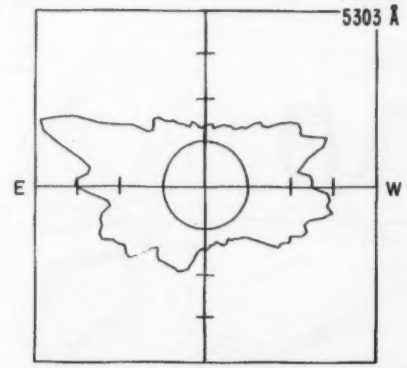




103
Jul 79

JULY 28, 1979 (P=8.96, B_o=5.45, L_o=216.72)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1350 UT

Sp

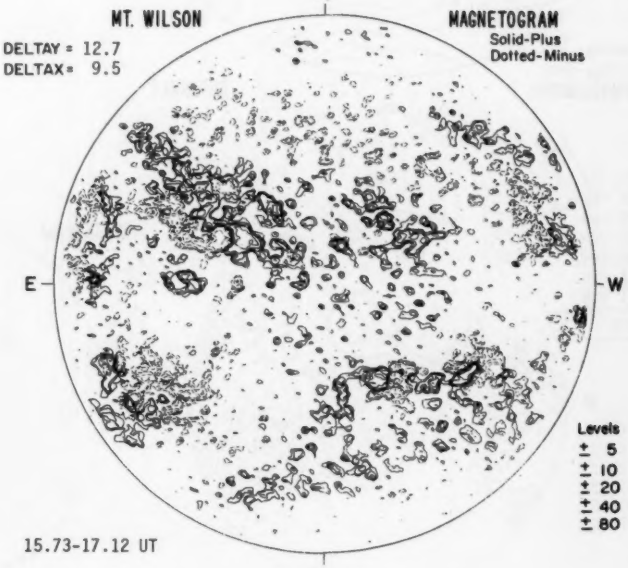
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

1722 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5



15.73-17.12 UT

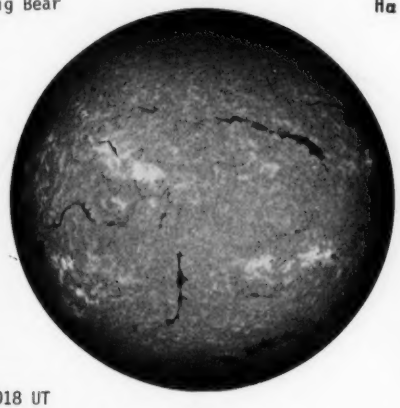
Sp

28

Big Bear

Np

Hα



E W

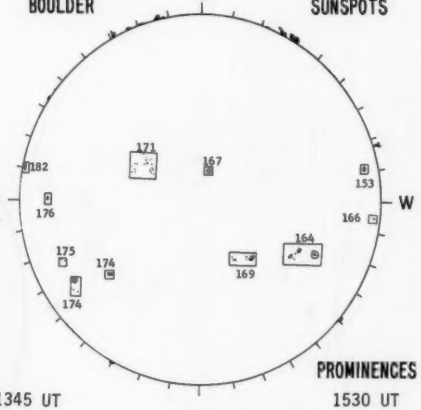
2018 UT

Sp

BOULDER

Np

SUNSPOTS



E W

1345 UT

Sp

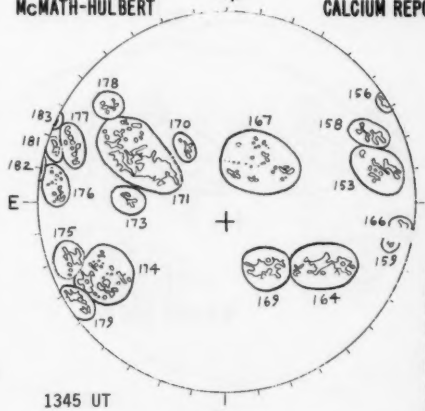
PROMINENCES

1530 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E W

1345 UT

Sp

FAIR	M
53- 1800-3.0	
56- 1400-2.5	
64- 1900-3.5	
66- 0900-3.0	
69- 1500-3.0	
71- 4500-3.5	
74- 1900-2.5	
75- 1200-3.0	

NOSC LA POSTA

Np

2.0 CM

NO DATA

SCHEDULE

E W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

SCHEDULE

E W

---- UT

Sp

Ant. Temp. Unit 100° K

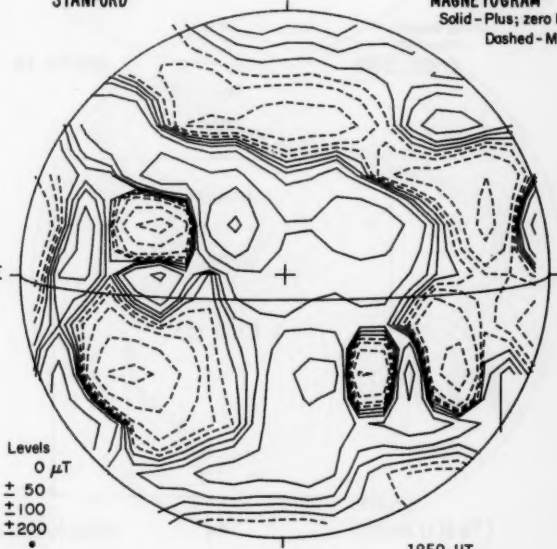
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

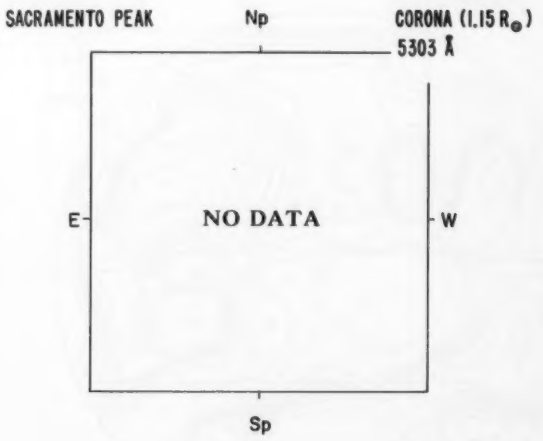
±100

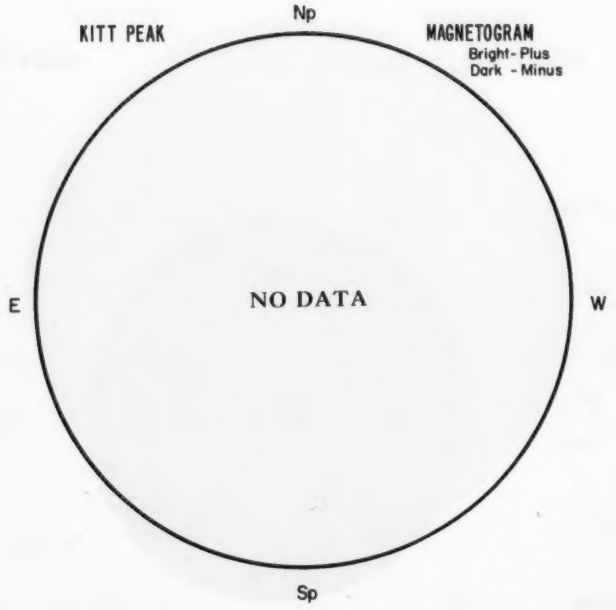
±200

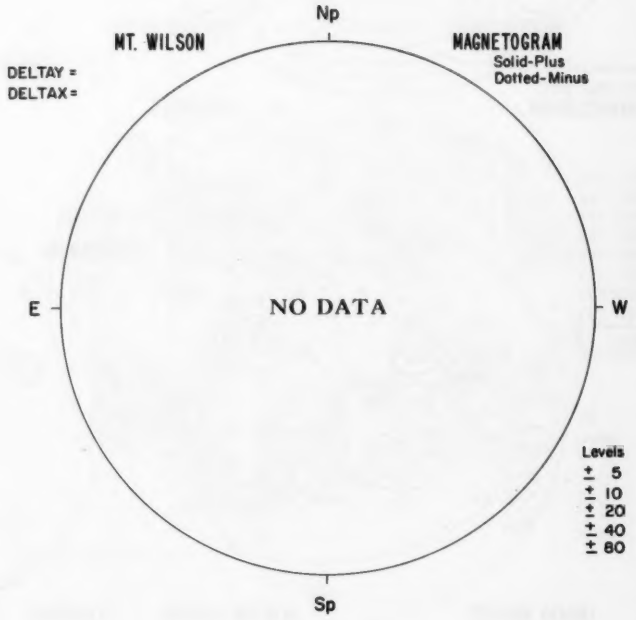
1850 UT

Sp

JULY 29, 1979 (P = 9.37, B_o = 5.53, L_o = 203.50)

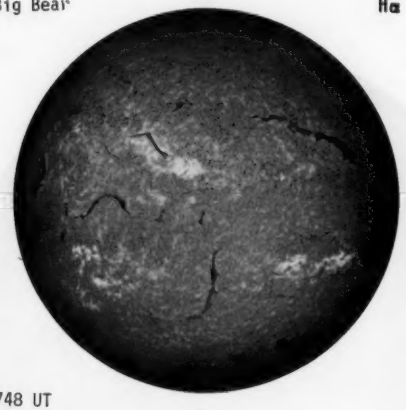






29

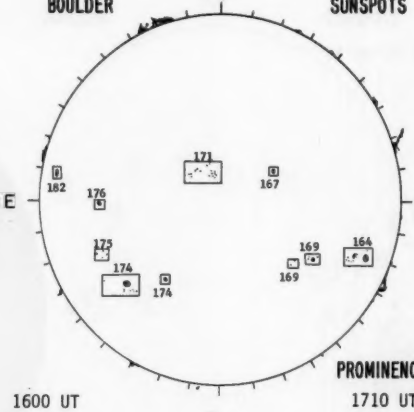
Big Bear



1748 UT

Hα

BOULDER



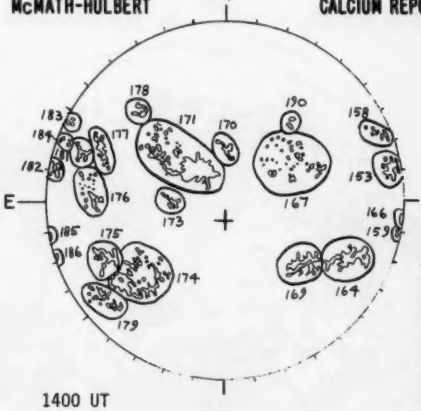
1600 UT

SUNSPOTS

PROMINENCES

1710 UT

McMATH-HULBERT



1400 UT

CALCIUM REPORT

GOOD	M
53-	1800-2.5
64-	1900-3.0
69-	1400-3.0
71-	4500-3.5
74-	2700-3.0
75-	1500-3.0

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

---- UT

Sp

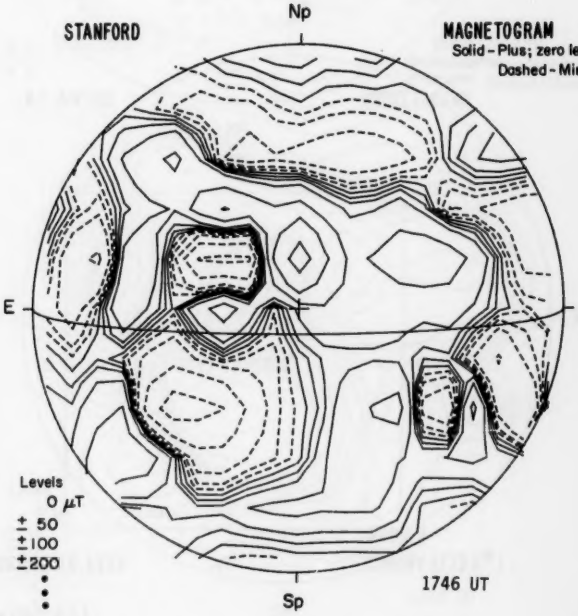
Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1746 UT

107
Jul 79

JULY 30, 1979 (P = 9.78, B_o = 5.61, L_o = 190.27)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

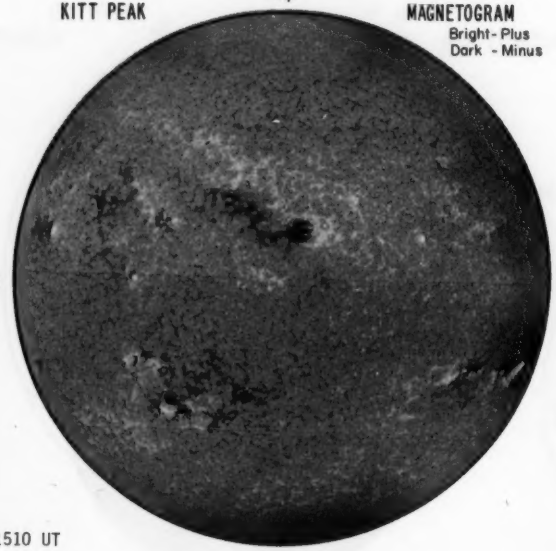
E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1510 UT

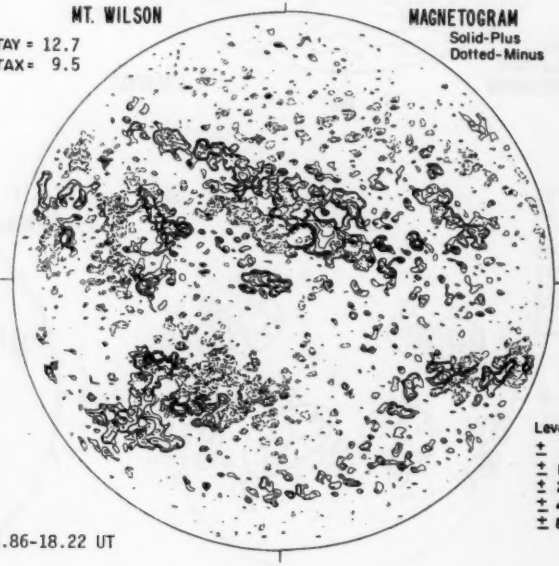
Sp

MT. WILSON

DELTAY = 12.7
DELTAX = 9.5

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus



E

W

Levels
± 5
± 10
± 20
± 40
± 80

16.86-18.22 UT

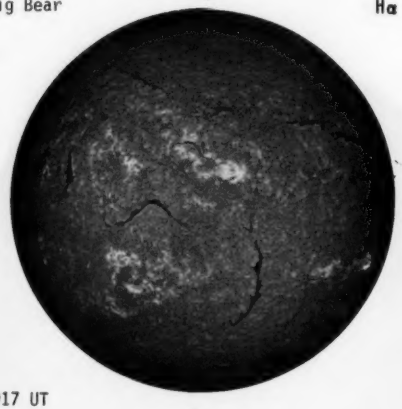
Sp

30

Big Bear

Np

Hα



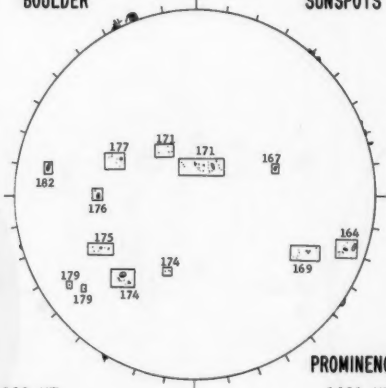
E W

1917 UT

Sp

BOULDER SUNSPOTS

Np



E W

1320 UT

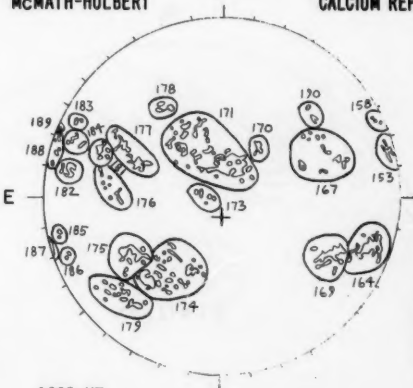
Sp

PROMINENCES

1401 UT

McMATH-HULBERT CALCIUM REPORT

Np



E W

1200 UT

Sp

FAIR	S
64-	2000-3.5
69-	1500-3.0
71-	4500-3.0
74-	2500-2.5
75-	1500-3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E EQUIPMENT W

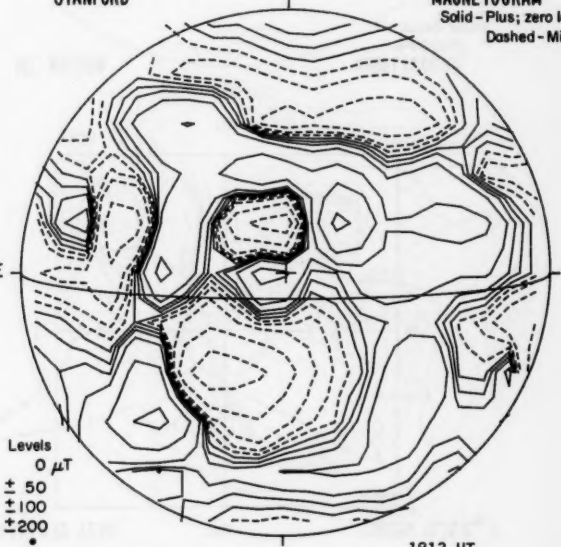
---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Np



E W

Levels

0 μT

± 50

±100

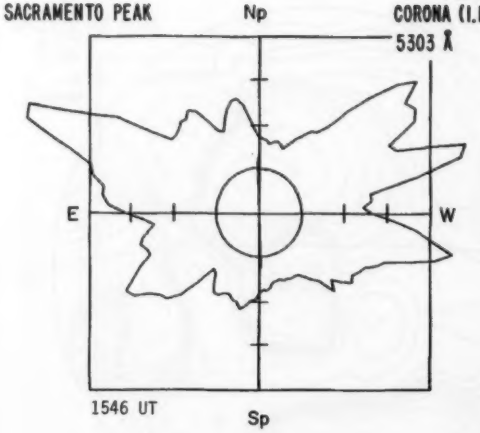
±200

1813 UT

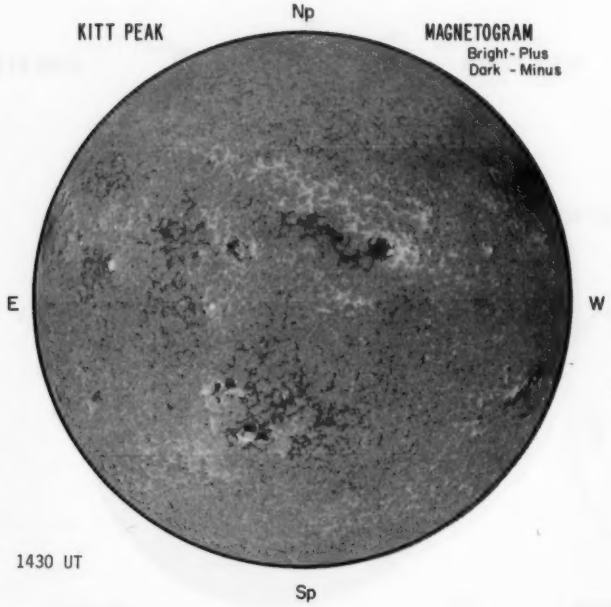
Sp

JULY 31, 1979 (P = 10.19, B_o = 5.69, L_o = 177.04)

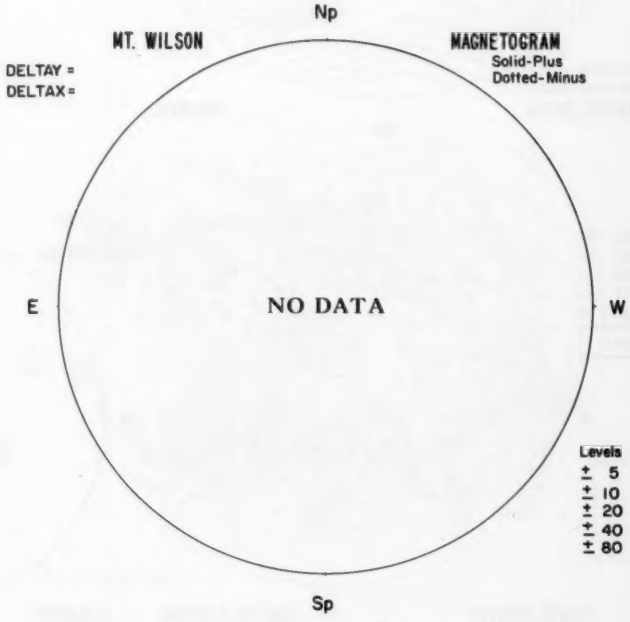
SACRAMENTO PEAK



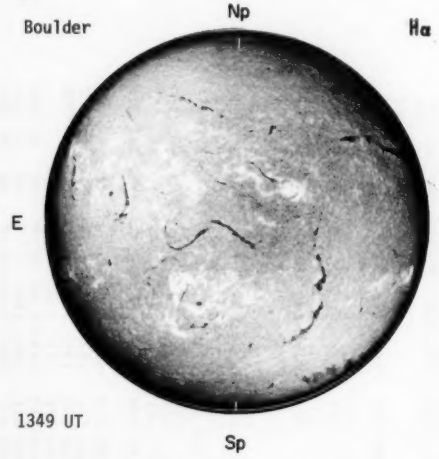
KITT PEAK

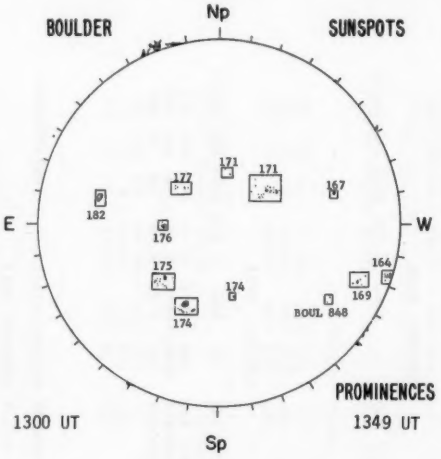


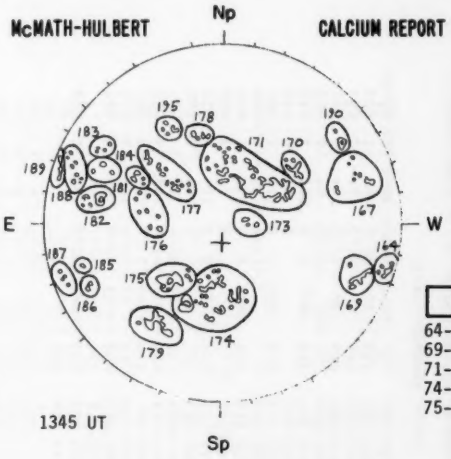
MT. WILSON



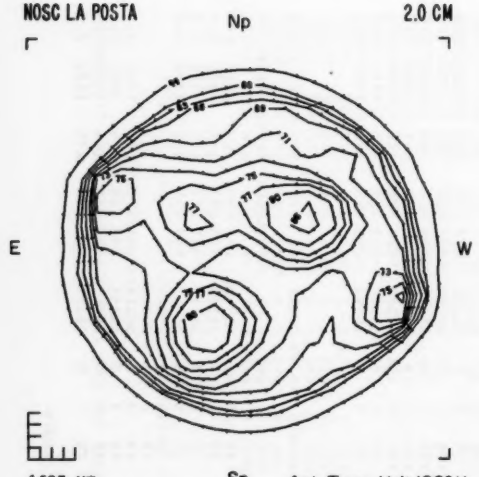
31

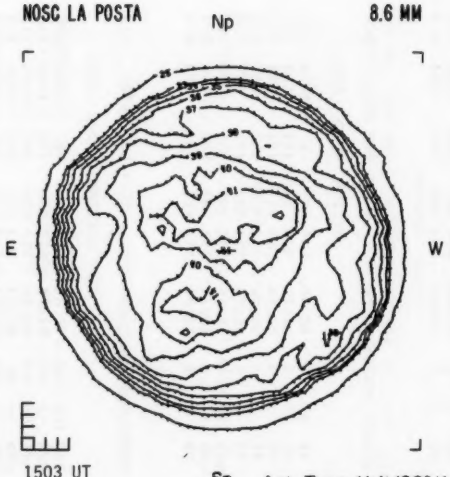


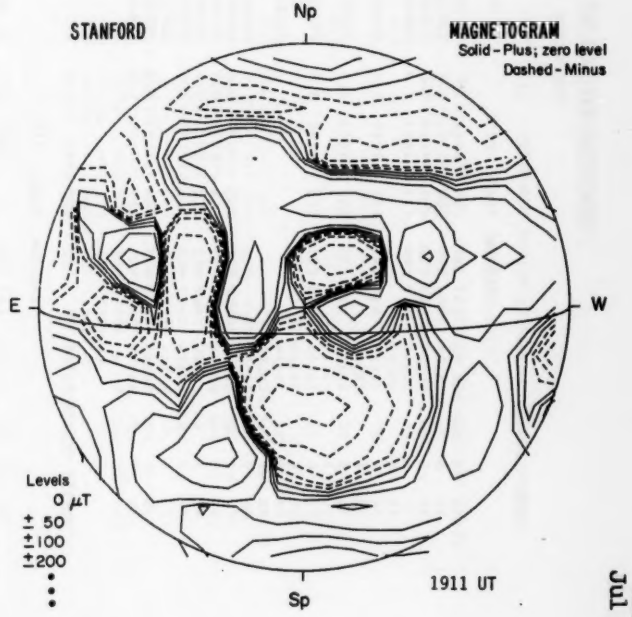




POOR	S
64- 1500-3.5	
69- 1000-3.0	
71- 4500-3.0	
74- 2800-2.5	
75- 1500-2.5	







111
Jul 79

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16104 — CMP DATE 1.0 — RETURN OF REGION 16046 — ROTATION 2

			CALCIUM					SUNSPOT							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	24	16104	N14 E88	212	1200	2.5	20696	N14 E86	214	AP	3	B	60	1	HSX
79	6	25	16104	N15 E80	208	1600	3.5	20696	N16 E75	212	AP	3	B	150	2	DSO
79	6	26	16104	N15 E65	209	2800	3.5	20696	N16 E60	214	BP	5	B	180	1	HSX
79	6		16104						N17 E63				B	60	5	DSO
79	6	27	16104	N16 E49	211	2500	3.5	20696	N16 E48	211	(BP)	5	B	160	3	CSO
79	6		16104						N18 E46				B	60	6	CSO
79	6	28	16104	N16 E36	212	2800	3.0	20696	N15 E33	213	(AP)	5	B	170	1	HSX
79	6		16104						N17 E36				B	50	10	CSO
79	6	29	16104	N16 E21	213	2200	3.0	20696	N16 E19	214	(BP)	5	B	130	1	HSX
79	6		16104						N09 E21				B	20	3	BXO
79	6	30	16104					20696	N15 E06	215	(BP)	5	B	180	3	CSO
79	6		16104						N18 E08				B	40	7	DSO
79	7	1	16104					20696	N14 W06	212	(BY)	4				
79	7	2	16104	N17 W23	213	2300	3.0	20696	N14 W22	214	(BY)	4	B	200	13	DSI
79	7	3	16104	N17 W35	214	2500	3.0	20696	N14 W34	213	(BY)	5	B	220	9	DSI
79	7	4	16104	N17 W47	213	2500	3.0	20696	N14 W46	212	(Y)	4	B	140	5	CSI
79	7	5	16104	N17 W60	214	2100	3.0	20696	N14 W59	212	(B)	4	B	120	3	CSO
79	7		16104					20727	N10 W68	221	(B)	2				
79	7	6	16104	N17 W73	214	1800	3.0	20696	N14 W72	212	(AP)	4	B	150	2	CSO
79	7	7	16104	N17 W86	213	900	1.5	20696	N14 W85	211	AP	3				

MCMATH REGION 16129 — CMP DATE 2.4

			CALCIUM					SUNSPOT							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	5	16129	N32 W41	195	100	1.0									
79	7	6	16129	N32 W53	194	100	1.5									

MCMATH REGION 16126 — CMP DATE 2.8

			CALCIUM					SUNSPOT							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	2	16126	N10 E80	190	400	2.0									
79	7	3	16126	N10 W12	191	700	2.5	20716	N10 W12	191	(BY)	3	B	100	16	DSI
79	7	4	16126	N10 W25	191	1000	3.0	20716	N09 W26	192	(BY)	3	B	30	12	CRI
79	7	5	16126	N10 W38	192	800	2.5	20716	N09 W39	192	(B)	3	B	10	3	BXO
79	7	6	16126	N10 W53	194	600	2.5									
79	7	7	16126	N11 W66	193	400	2.5									
79	7	8	16126	N10 W79	192	400	2.0									

MCMATH REGION 16108 — CMP DATE 3.5 — RETURN OF REGION 16051 — ROTATION 7

			CALCIUM					SUNSPOT							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	26	16108	N18 E85	189	1000	1.5									
79	6	27	16108	N18 E70	190	1600	2.5									
79	6	28	16108	N20 E56	192	3300	3.0									
79	6	29	16108	N20 E43	191	3000	3.0									
79	6	30	16108					20711	N09 E28	193	(AP)	3				
79	7	2	16108	N22 E10	180	3600	3.0									
79	7	3	16108	N22 W02	181	3200	3.0									
79	7	4	16108	N22 W16	182	3500	2.5									
79	7	5	16108	N22 W27	181	3500	2.5									
79	7	6	16108	N23 W39	180	3200	2.5									
79	7	7	16108	N23 W52	179	3000	2.0									
79	7	8	16108	N23 W66	179	1900	2.0									

MCMATH REGION 16111 — CMP DATE 4.0 — RETURN OF REGION 16056 — ROTATION 3

			CALCIUM					SUNSPOT							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	27	16111	N05 E88	172	300	2.0									
79	6	28	16111	N05 E73	175	1500	3.5	20705	N04 E69	177	(BP)	4	B	70	8	CAO
79	6	29	16111	N05 E59	175	1300	3.5	20705	N04 E56	177	(BP)	4	B	50	5	CRO
79	6	30	16111					20705	N04 E42	179	(BP)	3	B	60	9	DSO
79	7	1	16111					20705	N04 E29	177	(B)	3				
79	7	2	16111	N06 E18	172	1900	3.0	20705	N04 E17	175	(B)	2	B	20	8	DRO
79	7	3	16111	N06 E05	174	1600	2.5	20705	N04 E01	178	(AF)	2	B	40	6	DSO
79	7	4	16111	N07 W08	174	1600	2.5	20705	N05 W10	176	(B)	2	B	10	9	BXO
79	7	5	16111	N07 W20	174	1600	2.5	20705	N05 W18	171	B	2	B	10	4	BXO

CONTD

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16111 (CONT) CMP DATE 4.0 RETURN OF REGION 16056 ROTATION 3

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	6	16111	N07 W34	175	1500	2.5	20705	N06 W32	172	(AP)	2				
79	7	7	16111	N07 W47	174	1400	2.5	20705	N06 W50	176	(AP)	2	B	0	1	AXX
79	7	8	16111	N07 W60	173	1400	2.5									
79	7	9	16111	N08 W73	172	1500	1.5									

MCMATH REGION 16117 CMP DATE 4.2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	28	16117	N18 E72	176	1800	3.5	20706	N17 E74	172	(B)	4	B	250	15	DAO
79	6	29	16117	N18 E58	176	3000	3.5	20706	N18 E60	173	(B)	4	B	380	13	EAO
79	6	30	16117					20706	N18 E45	176	(B)	4	B	450	25	EKI
79	7	1	16117					20706	N18 E33	173	(B)	4				
79	7	2	16117	N18 E20	170	3500	3.5	20706	N18 E18	174	(D)	4	B	610	46	EKI
79	7	3	16117	N18 E08	171	3700	3.0	20706	N17 E03	176	(D)	4	B	580	47	EKI
79	7	4	16117	N18 W05	171	3800	3.5	20706	N17 W10	176	(BY)	4	B	250	28	EAI
79	7	5	16117	N18 W18	172	3500	3.0	20706	N17 W24	177	(BP)	4	B	140	26	FAI
79	7	6	16117	N18 W33	174	4100	3.0	20706	N17 W38	178	(BP)	4	B	140	21	FAO
79	7	7	16117	N18 W45	172	4300	3.5	20706	N17 W51	177	(BP)	4				
79	7	8	16117	N18 W58	171	3800	3.5	20706	N18 W67	180	(AP)	2				
79	7	9	16117	N18 W73	172	3800	3.0	20706	N18 W80	180	AP	2	B	60	2	CSO
79	7	10	16117	N20 W86	173	2500	2.5									

MCMATH REGION 16131 CMP DATE 4.9

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	8	16131	S07 W48	161	200	2.5	20733	S07 W50	163	(B)	2	B	10	2	AXX
79	7	9	16131	S07 W62	161	100	1.0									

MCMATH REGION 16128 CMP DATE 5.0

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	5	16128	N11 W07	161	200	1.5		N11 W09				B	10	3	BXO
79	7	6	16128	N11 W20	161	200	1.0									

MCMATH REGION 16112 CMP DATE 5.3 RETURN OF REGION 16052 ROTATIONS 5 AND 3

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	28	16112	S23 E85	163	1200	2.0	20707	S23 E75	171	(AP)	4	B	320	2	CHO
79	6	29	16112	S24 E75	159	2100	2.5	20707	S22 E62	171	(AP)	5	B	300	2	CSO
79	6		16112						S27 E79				B	10	1	AXX
79	6	30	16112					20707	S22 E51	170	(AP)	5	B	300	1	HHX
79	6		16112					20712	S28 E70	151	(B)	2	B	10	2	BXO
79	7	1	16112					20707	S22 E39	167	(AP)	5				
79	7	2	16112	S24 E34	156	5300	3.0	20707	S22 E27	165	(AP)	5	B	410	2	HHX
79	7	3	16112	S24 E21	158	5000	2.5	20707	S22 E13	166	(AP)	5	B	310	1	HHX
79	7		16112					20717	S18 E11	168	(AF)	3	B	10	1	HRX
79	7	4	16112	S24 E10	156	5000	2.5	20707	S22 E01	165	(AP)	5	B	240	2	HHX
79	7		16112					20717	S17 W03	169	(AF)	2				
79	7		16112					20722	S24 W05	171	(AP)	2				
79	7	5	16112	S23 W01	155	4800	2.5	20707	S22 W12	165	(AP)	5	B	330	1	HHX
79	7	6	16112	S23 W15	156	4300	2.5	20707	S22 W25	165	(AP)	5	B	260	2	HHX
79	7	7	16112	S23 W28	155	4500	2.5	20707	S22 W37	163	(BP)	5	B	300	2	HHX
79	7		16112					20731	S24 W25	151	(AF)	2				
79	7	8	16112	S23 W41	154	4500	3.0	20707	S22 W51	164	(BP)	5	B	330	7	HHX
79	7	9	16112	S23 W54	153	4500	3.0	20707	S22 W63	163	(BP)	3	B	390	17	DHI
79	7	10	16112	S24 W67	154	3700	2.5	20707	S22 W75	162	BP	3	B	320	5	CHO
79	7	11	16112	S25 W80	155	3000	2.0									

MCMATH REGION 16116 CMP DATE 5.5 RETURN OF REGION 16063 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	29	16116	S38 E88	146	500	1.5									
79	7	2	16116	S38 E36	154	200	1.0									

CONTD

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16116 (CONT) CMP DATE 5.5 RETURN OF REGION 16063 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	3	16116	S32 E23	156	100	1.0									
79	7	4	16116	S30 E12	154	100	1.0									

MCMATH REGION 16118 CMP DATE 5.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	1	16118					20713	S15 E54	152	(B)	3				
79	7	2	16118	S14 E38	152	2100	3.0	20713	S15 E40	152	(B)	3	B	160	12	DAI
79	7	3	16118	S14 E26	153	1700	2.5	20713	S15 E26	153	(B)	3	B	140	13	DAO
79	7	4	16118	S14 E14	152	1500	2.5	20713	S15 E12	154	(B)	2	B	40	6	BXO
79	7	5	16118	S15 E01	153	1500	2.5	20713	S15 W04	157	B	2	B	10	5	CRO
79	7	6	16118	S15 W14	155	1600	3.0	20713	S15 W16	156	(BP)	3	B	10	5	CSO
79	7	7	16118	S14 W27	154	1200	3.0	20713	S15 W28	154	(AP)	2	B	20	3	HRX
79	7	8	16118	S14 W41	154	1200	2.5									
79	7	9	16118	S14 W56	155	1200	2.5									
79	7	10	16118	S16 W70	157	1200	2.0									
79	7	11	16118	S17 W83	158	1100	2.0									

MCMATH REGION 16115 CMP DATE 5.9 RETURN OF REGION 16057 ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	29	16115	N04 E88	146	800	1.5	20709	N05 E85	148	AP	3	B	130	1	HSX
79	6	30	16115					20709	N05 E72	149	(AP)	4	B	150	1	HSX
79	7	1	16115					20709	N05 E58	148	(AP)	5				
79	7	2	16115	N04 E44	146	1400	2.5	20709	N05 E45	147	(AP)	4	B	140	1	HSX
79	7	3	16115	N04 E30	149	1100	2.5	20709	N05 E31	148	(AP)	5	B	140	2	HSX
79	7	4	16115	N04 E18	148	1100	2.0	20709	N04 E17	149	(AP)	4	B	120	1	HSX
79	7	5	16115	N04 E06	148	1300	2.5	20709	N04 E05	148	(AP)	5	B	150	1	HSX
79	7	6	16115	N04 W07	148	1100	2.0	20709	N04 W08	148	(AP)	5				
79	7	7	16115	N04 W20	147	1000	2.0	20709	N05 W22	148	(AP)	4	B	130	1	HSX
79	7	8	16115	N04 W33	146	1100	2.0	20709	N05 W37	150	(BP)	5	B	130	3	CSO
79	7	9	16115	N04 W47	146	1100	2.0	20709	N05 W48	148	(AP)	5				
79	7		16115					20734	N08 W42	142	(B)	1	B	140	3	CSO
79	7	10	16115	N04 W61	148	1100	2.5	20709	N05 W61	148	(AP)	4	B	140	1	HSX
79	7	11	16115	N04 W74	149	1200	2.0	20709	N05 W75	149	(AP)	3	B	140	1	HSX
79	7	12	16115	N05 W86	147	1100	3.0									

MCMATH REGION 16114 CMP DATE 6.1 RETURN OF PART OF REGION 16058 ROTATIONS 4 AND 5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	6	29	16114	N20 E88	146	500	1.5									
79	7	2	16114	N21 E44	146	500	1.5									
79	7	3	16114	N22 E32	147	400	2.0									
79	7	4	16114	N22 E20	146	400	1.5									
79	7	5	16114	N22 E08	146	700	2.0									
79	7	6	16114	N22 W05	146	700	2.0									
79	7	7	16114	N22 W18	145	500	2.0									
79	7	8	16114	N22 W33	146	600	2.0									
79	7	9	16114	N23 W47	146	600	2.0									
79	7	10	16114	N23 W60	147	600	2.0									
79	7	11	16114	N24 W72	147	600	1.5									
79	7	12	16114	N24 W85	146	400	1.0									

MCMATH REGION 16119 CMP DATE 6.9 RETURN OF PART OF REGIONS 16058 ROTATIONS 4 AND 5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	2	16119	N16 E56	134	1600	2.5									
79	7	3	16119	N16 E44	135	1300	2.0	20718	N08 E42	137	(B)	3	B	50	3	DRO
79	7	4	16119	N15 E32	134	1200	2.0	20718	N08 E27	139	(B)	3	B	40	5	BXO
79	7	5	16119	N14 E18	136	1600	2.5	20718	N08 E13	140	(B)	3	B	10	4	DRO
79	7	6	16119	N15 E05	136	1900	2.5	20718	N08 W01	141	(B)	2				
79	7	7	16119	N15 W08	135	1700	2.0	20732	N09 W03	129	(B)	3				
79	7	8	16119	N15 W21	134	1800	2.0									
79	7	9	16119	N15 W36	135	1100	2.0									
79	7	10	16119	N15 W50	137	1000	2.5									
79	7	11	16119	N15 W63	138	1100	2.0									
79	7	12	16119	N15 W76	137	800	2.0									

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16120 CMP DATE 7.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	1	16120					20714	N22 E75	131	(AP)	3				
79	7	2	16120	N24 E63	127	600	3.0	20714	N23 E62	130	(BP)	4	B	60	1	HSX
79	7	3	16120	N24 E52	127	700	3.0	20714	N23 E50	129	(BP)	4	B	180	5	HSX
79	7	4	16120	N24 E40	126	700	3.0	20714	N23 E37	129	(BP)	4	B	100	4	HSX
79	7	5	16120	N24 E27	127	1000	3.0	20714	N22 E24	129	(BP)	4	B	120	5	CAO
79	7	6	16120	N24 E14	127	1000	3.0	20714	N23 E11	129	(BP)	4	B	110	5	CSO
79	7	7	16120	N24 E01	126	1100	3.0	20714	N23 W02	128	(BP)	4	B	80	3	HSX
79	7	8	16120	N24 W12	125	1300	3.0	20714	N23 W16	129	(BP)	4	B	100	2	HSX
79	7	9	16120	N25 W26	125	1300	2.5	20714	N22 W30	130	(BY)	4	B	90	5	CAO
79	7	10	16120	N25 W40	127	1500	3.0	20714	N22 W42	129	(D)	4	B	110	6	DSI
79	7	11	16120	N25 W52	127	1800	2.5	20714	N22 W55	129	(AP)	3	B	110	7	DAI
79	7	12	16120	N25 W65	126	1800	2.5	20714	N23 W67	127	(AP)	3	B	30	2	HSX
79	7	13	16120	N24 W78	125	1400	1.5	20714	N22 W78	125	AP	2	B	70	1	HSX

MCMATH REGION 16122 CMP DATE 8.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	1	16122					20715	N10 E80	126	(AP)	3				
79	7	2	16122	N08 E72	118	4000	3.5	20715	N10 E70	122	(BP)	5	B	590	5	EKO
79	7	3	16122	N09 E60	119	4000	3.5	20715	N09 E55	124	(BP)	5	B	380	10	CKO
79	7		16122					20720	N09 E64	115	(B)	3	B	160	9	DSI
79	7	4	16122	N09 E49	117	4000	3.5	20715	N10 E41	125	(D)	5	B	420	9	HKX
79	7		16122					20720	N09 E49	117	(B)	3	B	30	13	BXI
79	7	5	16122	N09 E36	118	3700	3.0	20715	N10 E29	124	(D)	5	B	430	11	DAO
79	7		16122					20720	N09 E35	118	(B)	3	B	40	16	CSI
79	7	6	16122	N10 E22	119	4000	3.0	20715	N11 E16	124	(D)	5				
79	7	7	16122	N10 E09	118	4000	3.0	20715	N11 E03	123	(BY)	5	B	320	15	CHI
79	7	8	16122	N10 W07	120	3700	3.0	20715	N11 W12	125	(D)	5	B	380	18	HKX
79	7	9	16122	N11 W20	119	3700	3.0	20715	N11 W25	125	(AP)	5	B	360	20	CKO
79	7	10	16122	N11 W33	120	3700	3.0	20715	N11 W37	124	(AP)	5	B	380	9	DHO
79	7	11	16122	N11 W45	120	3700	3.0	20715	N11 W51	125	(AP)	5	B	290	4	CHO
79	7	12	16122	N10 W58	119	3000	3.0	20715	N11 W65	125	(AP)	5	B	300	2	HSX
79	7	13	16122	N11 W71	118	2400	3.0	20715	N11 W76	123	(AP)	4	B	140	1	HSX
79	7	14	16122	N10 W84	119	900	3.0									

MCMATH REGION 16121 CMP DATE 8.4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	2	16121	N17 E74	116	1300	3.0									
79	7	3	16121	N17 E61	118	1200	3.0	20719	N18 E58	121	(B)	2	B	10	3	BXO
79	7	4	16121	N17 E49	117	1000	3.0	20719	N17 E45	121	(AP)	2				
79	7	5	16121	N17 E37	117	1000	2.5	20719	N17 E30	123	B	2	B	0	2	AXX
79	7	6	16121	N18 E25	116	1200	2.5	20730	N17 E28	112	(B)	3	B	40	12	DAO
79	7	7	16121	N17 E12	115	1300	2.5	20730	N18 E12	114	(BY)	4	B	40	8	CAO
79	7	8	16121	N17 W01	114	1300	2.5	20730	N18 W03	116	(BP)	3	B	30	4	CRO
79	7	9	16121	N17 W15	114	1300	2.5	20735	N16 W09	109	(AF)	2	B	10	2	BXO
79	7	10	16121	N17 W28	115	1300	2.5	20736	N18 W27	114	(B)	2				
79	7	11	16121	N17 W40	115	1300	2.5		N20 W42				B	0	1	AXX
79	7	12	16121	N17 W53	114	1300	2.5									
79	7	13	16121	N17 W67	114	1300	1.5									
79	7	14	16121	N17 W80	115	600	1.0									

MCMATH REGION 16123 CMP DATE 9.9 RETURN OF REGION 16067 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	3	16123	N17 E80	99	4500	3.5	20721	N13 E79	100	(AP)	3	B	30	2	HSX
79	7	4	16123	N16 E68	98	4300	3.5	20721	N13 E66	100	(BP)	3	B	130	2	CSO
79	7		16123					20726	N17 E70	96	(AF)	3				
79	7	5	16123	N16 E54	100	4000	3.0	20721	N13 E54	99	(BP)	4	B	210	5	DAI
79	7		16123					20728	N20 E57	96	(AF)	2	B	0	1	AXX
79	7	6	16123	N17 E42	99	4000	3.5	20721	N12 E40	100	(BP)	4				
79	7		16123					20728	N21 E43	97	(B)	4				
79	7	7	16123	N17 E29	98	4000	3.5	20721	N13 E27	99	(BP)	5	B	200	11	DSI
79	7		16123					20728	N22 E30	96	(B)	3	B	70	9	DAO
79	7	8	16123	N17 E16	97	4500	3.0	20721	N13 E12	101	(AP)	4	B	140	9	CSO
79	7		16123					20728	N22 E16	97	(B)	4	B	40	11	CRI
79	7	9	16123	N17 E03	96	4300	3.0	20721	N13 W02	102	(AP)	4	B	100	1	HSX
79	7		16123					20728	N22 E02	98	(B)	2	B	60	17	CRI
79	7	10	16123	N18 W10	97	4500	3.5	20721	N13 W14	101	(AP)	4	B	90	3	CSO
79	7		16123					20728	N21 W09	96	(B)	2	B	150	23	DRI

CONTD

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16123 (CONT) CMP DATE 9.9 RETURN OF REGION 16067 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	11	16123	N19 W22	97	4500	3.5	20721	N13 W27	101	(BP)	4	B	140	14	CSO
79	7		16123					20728	N22 W21	95	(B)	4	B	60	26	ESO
79	7	12	16123	N19 W35	96	5000	3.5	20721	N13 W41	101	(AP)	4	B	80	3	HSX
79	7		16123					20728	N22 W35	95	(B)	3	B	100	21	DAO
79	7		16123					20740	N17 W34	94	(B)	3	B	30	6	CRO
79	7	13	16123	N19 W49	96	5500	3.5	20721	N13 W54	101	(AP)	4	B	70	1	HSX
79	7		16123					20728	N21 W47	94	(B)	3	B	50	13	CRI
79	7		16123					20740	N17 W45	92	(AP)	2	B	50	13	CRI
79	7	14	16123	N19 W62	97	5300	3.5	20721	N13 W67	101	(AF)	4	B	90	6	DSO
79	7		16123					20728	N21 W60	94	(BF)	3	B	120	9	DAO
79	7		16123					20740	N17 W58	92	(AF)	2				
79	7	15	16123	N19 W75	96	5300	3.5	20721	N13 W80	101	AP	2	B	100	3	DSO
79	7		16123					20728	N21 W76	97	B	2	B	30	4	BXO
79	7		16123					20740	N17 W72	93	(B)	2				
79	7	16	16123	N21 W88	97	800	2.5									

MCMATH REGION 16124 CMP DATE 10.3 RETURN OF REGION 16065 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	3	16124	S18 E90	89	500	1.5		S19 E88				B	30	1	HSX
79	7	4	16124	S20 E80	86	1500	3.5	20724	S17 E73	93	(AP)	3				
79	7		16124					20725	S15 E73	93	(X)	2	B	70	2	CSO
79	7	5	16124	S16 E65	89	1300	3.5	20724	S18 E60	93	(AP)	3	B	80	3	DSO
79	7		16124					20725	S15 E63	90	(AF)	2				
79	7	6	16124	S16 E52	89	1600	3.0	20724	S17 E48	92	(BP)	4	B	100	8	DAO
79	7	7	16124	S17 E38	89	1600	3.5	20724	S17 E34	92	(AP)	4	B	100	5	CSO
79	7	8	16124	S16 E22	91	1600	3.0	20724	S18 E21	92	(BP)	4	B	70	4	CSO
79	7	9	16124	S16 E08	91	1600	2.5	20724	S18 E08	92	(BP)	4	B	70	2	CSO
79	7	10	16124	S15 W04	91	1400	3.0	20724	S17 W05	92	(AP)	3	B	80	1	HSX
79	7	11	16124	S15 W15	90	1200	2.5	20724	S17 W17	91	(BP)	4	B	110	2	CSO
79	7	12	16124	S15 W28	89	1000	2.5	20724	S17 W30	90	(AP)	3	B	70	1	HSX
79	7	13	16124	S15 W42	89	1200	2.5	20724	S17 W47	94	(AP)	4	B	100	1	HSX
79	7		16124					20742	S13 W52	99	(AF)	3	B	0	1	AXX
79	7	14	16124	S15 W54	89	1200	2.5	20724	S17 W56	90	(AP)	4	B	50	2	HSX
79	7	15	16124	S15 W67	88	1300	2.0	20724	S17 W68	89	(AP)	3	B	40	1	HSX
79	7	16	16124	S15 W81	90	300	1.0	20724	S17 W82	90	AP	2				

MCMATH REGION 16125 CMP DATE 10.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	3	16125	S29 E90	89	300	1.0		S29 E86				B	60	1	HSX
79	7	4	16125	S28 E80	86	1200	2.5	20723	S28 E70	96	BP	3	B	70	3	DSO
79	7	5	16125	S27 E64	90	1500	3.0	20723	S28 E60	93	(AP)	3	B	100	9	DAO
79	7	6	16125	S27 E53	88	2000	3.0	20723	S28 E46	94	(BP)	3	B	100	11	DAO
79	7	7	16125	S28 E39	88	2300	3.0	20723	S28 E33	93	(BY)	4	B	50	8	DSO
79	7	8	16125	S27 E24	89	3000	3.0	20723	S28 E20	93	(BY)	4	B	30	10	CSO
79	7	9	16125	S26 E10	89	2800	2.5	20723	S27 E05	95	(AP)	3	B	50	7	CSI
79	7	10	16125	S26 W02	89	2800	2.5	20723	S26 W11	98	(AP)	3				
79	7		16125					20737	S30 W02	89	(AP)	1	B	50	3	CSO
79	7	11	16125	S26 W12	87	2500	2.0	20723	S27 W21	95	(AP)	3	B	10	2	BXO
79	7	12	16125	S26 W25	86	2200	2.0	20723	S27 W35	95	(AP)	3	B	30	4	CRO
79	7	13	16125	S26 W38	85	2300	2.0	20723	S29 W47	94	(AP)	2	B	0	1	HRX
79	7	14	16125	S27 W49	84	2300	2.0	20723	S27 W60	94	(AP)	2	B	40	1	HRX
79	7	15	16125	S27 W63	84	2200	2.0		S27 W74				B	0	1	AXX

MCMATH REGION 16149 CMP DATE 11.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	16	16149	N06 W71	80	100	2.0									

MCMATH REGION 16127 CMP DATE 11.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	5	16127	N28 E85	69	600	3.0	20729	N27 E78	75	(AP)	3	B	30	1	HSX
79	7	6	16127	N28 E70	71	600	3.0	20729	N27 E64	76	(B)	3	B	60	6	DAO
79	7	7	16127	N28 E53	74	800	3.0	20729	N27 E51	75	(B)	3	B	40	9	CRI
79	7	8	16127	N28 E39	74	1200	3.5	20729	N28 E39	74	(B)	3	B	80	13	DAI

CONTD

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16127 (CONT) CMP DATE 11.6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	7	9	16127	N28 E25	74	1400	3.5
79	7	10	16127	N28 E13	74	1500	3.5
79	7	11	16127	N28 E02	73	2100	3.0
79	7	12	16127	N28 W10	71	2100	3.0
79	7	13	16127	N28 W24	71	2400	3.0
79	7	14	16127	N28 W37	72	2500	3.0
79	7	15	16127	N28 W49	70	2800	3.0
79	7	16	16127	N28 W61	70	2100	3.0
79	7	17	16127	N28 W74	69	1500	2.0
79	7	18	16127	N29 W85	68	1200	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20729	N29 E26	74	(B)	3	B	210	19	DKI
20729	N28 E15	72	(B)	4	B	240	23	DAI
20729	N28 E02	72	(B)	4	B	140	18	DAI
20729	N28 W12	72	(B)	3	B	130	17	DAO
20729	N28 W24	71	(B)	4	B	70	8	DSO
20729	N28 W37	71	(BF)	4	B	50	8	DSO
20729	N28 W47	68	(AF)	3				
20729	N28 W62	70	(B)	3	B	10	3	AXX

MCMATH REGION 16130 CMP DATE 12.2 RETURN OF REGION 16078 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	7	6	16130	N07 E85	56	300	1.0
79	7	7	16130	N07 E65	62	500	1.5
79	7	8	16130	N07 E50	63	500	2.0
79	7	9	16130	N08 E35	64	100	1.0
79	7	10	16130	N08 E21	66	100	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 16150 CMP DATE 13.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	7	14	16150	S26 W14	49	200	1.0
79	7	15	16150	S24 W38	59	400	1.5
79	7	16	16150	S25 W41	50	500	2.5
79	7	17	16150	S24 W54	49	900	2.5
79	7	18	16150	S24 W69	52	900	2.5
79	7	19	16150	S24 W84	54	500	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20747	S25 W32	53	(AF)	1				
20747	S25 W41	49	(B)	2				
20747	S24 W57	49	(B)	3	R	30	6	DRO
20747	S25 W69	50	B	2	B	20	2	BXO

MCMATH REGION 16133 CMP DATE 14.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	7	9	16133	N10 E60	39	200	1.5
79	7	10	16133	N11 E46	41	800	3.0
79	7	11	16133	N11 E34	41	1300	3.0
79	7	12	16133	N11 E20	41	1200	2.5
79	7	13	16133	N12 E06	41	1400	2.0
79	7	14	16133	N12 W07	42	1200	2.0
79	7	15	16133	N12 W21	42	1000	2.5
79	7	16	16133	N12 W35	44	1000	2.5
79	7	17	16133	N12 W51	46	1300	3.0
79	7	18	16133	N13 W64	47	1600	2.0
79	7	19	16133	N13 W77	47	1100	2.0
79	7	20	16133	N10 W90	46	300	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N12 E53				B	20	2	BXO
20738	N11 E44	43	(B)	3	B	30	3	CRO
20738	N11 E31	43	(B)	4	B	100	11	DSO
20738	N11 E17	43	(B)	3	B	120	11	DSO
20738	N11 E02	45	(B)	4	B	80	4	DAO
20738	N11 W10	44	(B)	4	B	40	5	DSO
20738	N10 W25	46	(B)	4				
20738	N11 W39	47	(B)	3	B	70	14	DRO
20738	N11 W55	47	(BP)	4	R	80	11	DSI
20738	N11 W67	48	(BP)	4	B	110	5	CSO

MCMATH REGION 16151 CMP DATE 14.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	7	14	16151	S27 E00	35	100	1.0
79	7	15	16151	S27 W14	35	100	1.5
79	7	16	16151	S26 W26	35	600	2.0
79	7	17	16151	S26 W39	34	200	1.0
79	7	18	16151	S25 W52	35	100	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20745	S27 W02	36	(AP)	2	B	0	1	AXX
20745	S26 W15	36	(AP)	1				

MCMATH REGION 16154 CMP DATE 15.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	7	16	16154	S19 W20	29	100	1.5
79	7	17	16154	S19 W33	28	400	2.5
79	7	18	16154	S19 W46	29	500	3.0
79	7	19	16154	S19 W59	29	500	2.5
79	7	20	16154	S19 W72	28	700	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20749	S18 W21	29	(AP)	2	B	10	1	AXX
20749	S18 W36	28	(B)	3	R	50	9	DSO
20749	S18 W48	29	(B)	3	B	50	6	CRI
20749	S18 W62	28	(AP)	3	B	10	1	AXX

CONTD

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16154 (CONT) CMP DATE 15.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	7	21	16154	S19 W88	31	200	1.0								

MCMATH REGION 16132 CMP DATE 15.1 RETURN OF REGION 16073 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	7	8	16132	N24 E90	23	400	1.0								
79	7	9	16132	N23 E75	24	500	1.0								
79	7	10	16132	N22 E60	27	800	2.0								
79	7	11	16132	N22 E50	25	700	2.0								
79	7	12	16132	N22 E37	24	900	2.0								
79	7	13	16132	N22 E23	24	800	2.0								
79	7	14	16132	N22 E08	27	800	2.0	20746	N27 E11	23	(AP)	1			
79	7	15	16132	N22 W05	26	800	2.0								
79	7	16	16132	N22 W17	26	800	2.0								
79	7	17	16132	N22 W30	25	800	2.5								
79	7	18	16132	N23 W43	26	800	2.0								
79	7	19	16132	N25 W56	26	800	2.0								
79	7	20	16132	N27 W69	25	800	2.0								
79	7	21	16132	N27 W81	24	600	1.0								

MCMATH REGION 16134 CMP DATE 15.3 RETURN OF REGION 16074 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	7	9	16134	S15 E81	18	300	1.0								
79	7	10	16134	S14 E64	23	200	1.5								
79	7	11	16134	S14 E51	24	100	2.0								
79	7	12	16134	S14 E38	23	100	1.5								
79	7	13	16134	S14 E23	24	200	1.0								

MCMATH REGION 16136 CMP DATE 16.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	7	10	16136	S30 E77	10	200	1.0								
79	7	11	16136	S30 E65	10	500	1.0								
79	7	12	16136	S30 E52	9	600	2.0								
79	7	13	16136	S29 E35	12	600	1.5								
79	7	14	16136	S30 E23	12	500	1.0								
79	7	15	16136	S30 E10	11	500	1.5								
79	7	16	16136	S31 E00	9	400	1.5								
79	7	17	16136	S30 W13	8	300	1.0								
79	7	18	16136	S30 W25	8	500	1.0								

MCMATH REGION 16138 CMP DATE 16.5 RETURN OF REGION 16091 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	7	10	16138	N24 E75	12	400	1.0								
79	7	11	16138	N25 E65	10	500	1.0								
79	7	12	16138	N25 E54	7	700	1.0								
79	7	13	16138	N25 E40	7	600	1.0								
79	7	14	16138	N26 E28	7	600	1.0								
79	7	15	16138	N25 E13	8	500	1.0								
79	7	16	16138	N26 E02	7	400	1.0								

MCMATH REGION 16135 CMP DATE 16.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	7	10	16135	S16 E80	7	100	1.0								
79	7	11	16135	S15 E68	7	100	1.5								
79	7	12	16135	S16 E54	7	400	2.5								
79	7	13	16135	S15 E40	7	300	1.5								
79	7	14	16135	S15 E27	8	200	1.0								

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16160 CMP DATE 16.6

			CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	18	16160					20754	N29 W27	8	(AF)	3	B	10	3	BXO
79	7	19	16160	N28 W38	8	300	2.5									
79	7	20	16160	N29 W51	7	900	3.5	20754	N29 W51	5	B	3	B	80	16	DRI
79	7	21	16160	N29 W65	8	1000	3.0	20754	N28 W62	4	(B)	3	B	70	17	DSI
79	7	22	16160	N29 W78	7	1000	2.5	20754	N29 W75	3	(B)	3	B	60	2	CSO
79	7	23	16160	N30 W90	6	500	2.0		N30 W88				B	20	1	HSX

MCMATH REGION 16137 CMP DATE 17.7

			CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	11	16137	S28 E82	354	500	2.5	20739	S27 E72	2	(X)	2				
79	7	12	16137	S28 E69	353	1900	2.5	20739	S27 E61	0	(B)	3	B	70	5	DAO
79	7	13	16137	S27 E52	356	1800	3.0	20739	S27 E51	357	(BP)	3	B	130	8	ERI
79	7	14	16137	S27 E40	356	1800	3.0	20739	S27 E40	355	(B)	4	B	160	21	ESI
79	7	15	16137	S27 E27	355	2000	3.0	20739	S27 E27	355	(BP)	4				
79	7	16	16137	S27 E15	355	2500	3.0	20739	S27 E14	355	(B)	4	B	100	22	ESI
79	7	17	16137	S27 E02	354	2400	3.0	20739	S27 W01	354	(BP)	4	R	150	13	DSO
79	7	18	16137	S27 W11	354	2500	3.0	20739	S26 W14	355	(BP)	4	B	210	14	DSI
79	7		16137					20755	S19 W10	351	(AP)	2				
79	7	19	16137	S25 W24	354	3000	3.5	20739	S27 W30	356	(BP)	4	B	160	11	CSI
79	7		16137					20755	S21 W25	351	(B)	3	B	40	5	CRO
79	7	20	16137	S25 W36	352	3000	3.0	20739	S27 W43	357	AP	4	B	90	3	HSX
79	7		16137					20755	S21 W37	351	B	3	B	20	4	BXO
79	7	21	16137	S27 W50	353	3000	3.0	20739	S27 W55	357	(AP)	3	B	120	6	CSO
79	7	22	16137	S27 W64	353	2600	3.0	20739	S27 W69	357	(AP)	3	B	20	3	CSO
79	7	23	16137	S28 W77	353	2100	2.0									

MCMATH REGION 16161 CMP DATE 17.8

			CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	19	16161	N17 W23	353	900	3.5	20757	N16 W25	351	(BP)	3	B	30	14	CRI
79	7	20	16161	N17 W36	352	1600	3.5	20757	N15 W39	353	BP	3	B	100	27	DRI
79	7	21	16161	N16 W50	353	1600	3.5	20757	N15 W51	353	(B)	4				
79	7	22	16161	N17 W65	354	2100	3.5	20757	N15 W65	353	(C)	4	B	330	28	EKI
79	7	23	16161	N16 W78	354	2700	3.5	20757	N15 W79	354	(B)	3	B	250	6	EKI
79	7	24	16161	N17 W90	354	800	2.0									

MCMATH REGION 16140 CMP DATE 17.9

			CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	12	16140	S12 E75	347	200	2.0									
79	7	13	16140	S12 E57	351	300	2.5	20744	S12 E58	350	(AF)	2	B	0	1	AXX
79	7	14	16140	S12 E45	351	300	2.5									
79	7	15	16140	S12 E31	351	300	3.0									
79	7	16	16140	S12 E18	352	300	2.5									
79	7	17	16140	S12 E05	351	300	1.5									
79	7	18	16140	S12 W09	352	300	1.0									
79	7	19	16140	S12 W23	353	300	1.0	20758	S13 W28	354	(AP)	2	B	10	2	AXX
79	7	20	16140	S12 W37	353	200	1.0									
79	7	21	16140	S12 W51	354	200	1.0									
79	7	22	16140	S12 W66	355	100	1.0									

MCMATH REGION 16142 CMP DATE 18.2

			CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	12	16142	N09 E75	347	200	1.0									
79	7	13	16142	N09 E60	348	500	1.0									
79	7	14	16142	N10 E48	348	300	1.0									
79	7	15	16142	N09 E34	348	200	1.0									
79	7	16	16142	N09 E21	349	200	1.0									
79	7	17	16142	N09 E09	347	100	1.0									
79	7	18	16142	N09 W05	348	200	1.0									
79	7	19	16142	N09 W21	351	100	1.0									
79	7	20	16142	N09 W35	351	200	1.5									
79	7	21	16142	N08 W49	352	100	1.0									
79	7	22	16142	N08 W64	353	200	1.0									

CONTD

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16142 (CONT) CMP DATE 18.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	23	16142	N09 W77	353	100	1.5									

MCMATH REGION 16162 CMP DATE 18.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	19	16162	N26 W16	346	100	2.0	20756	N25 W20	346	(AP)	2				
79	7	20	16162	N27 W29	345	100	1.0									

MCMATH REGION 16165 CMP DATE 18.7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	21	16165	N13 W37	340	200	1.5		N13 W37				B	10	2	AXX
79	7	22	16165	N13 W52	341	800	3.3	20764	N13 W53	341	(B)	3	B	40	12	CSO
79	7	23	16165	N14 W66	342	1300	3.5	20764	N13 W67	342	(B)	2	B	130	13	DSI
79	7	24	16165	N14 W79	343	1700	3.5		N11 W85				B	80	9	CSO

MCMATH REGION 16144 CMP DATE 18.9 RETURN OF REGION 16107 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	13	16144	S27 E68	340	800	1.5									
79	7	14	16144	S27 E56	340	600	1.5									
79	7	15	16144	S27 E43	339	400	2.0									
79	7	16	16144	S27 E31	339	400	2.0									
79	7	17	16144	S27 E18	338	300	1.5									
79	7	18	16144	S27 E05	338	400	1.5		S27 E02				B	10	3	AXX
79	7	19	16144	S27 W08	338	300	1.0									
79	7	20	16144	S26 W23	339	300	1.5									
79	7	21	16144	S26 W35	338	300	1.0									

MCMATH REGION 16143 CMP DATE 19.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	13	16143	S12 E75	333	600	1.5									
79	7	14	16143	S13 E63	333	500	1.0									
79	7	15	16143	S13 E49	333	300	1.5									
79	7	16	16143	S13 E36	334	400	1.5									
79	7	17	16143	S13 E23	333	300	1.0									
79	7	18	16143	S14 E10	333	300	1.0									
79	7	19	16143	S14 W04	334	300	1.0									
79	7	20	16143	S14 W18	334	200	1.0									
79	7	21	16143	S14 W33	336	200	1.5									

MCMATH REGION 16139 CMP DATE 19.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	12	16139	N2 (E85	337	500	2.5	20741	N29 E80	341	(AP)	2	B	120	1	HSX
79	7	13	16139	N28 E73	335	1600	3.0	20741	N29 E70	338	(BP)	4	B	130	4	CSO
79	7	14	16139	N28 E62	334	2000	3.0	20741	N29 E59	336	(BP)	4	B	150	14	DAI
79	7	15	16139	N28 E49	333	2000	3.0	20741	N29 E46	336	(B)	4				
79	7	16	16139	N28 E36	334	2400	3.0	20741	N29 E33	336	(BP)	4	B	240	19	ESI
79	7	17	16139	N29 E24	332	2000	3.0	20741	N29 E21	332	(BP)	4	R	240	26	EAO
79	7	18	16139	N29 E12	331	2200	3.0	20741	N29 E07	334	(BP)	4	B	240	19	DAO
79	7	19	16139	N29 W01	331	2300	3.5	20741	N30 W09	335	(AP)	4	B	180	7	CSO
79	7	20	16139	N29 W15	331	2300	3.0	20741	N30 W22	336	AP	4	B	130	7	DSO
79	7	21	16139	N30 W30	333	2300	3.0	20741	N30 W33	335	(BP)	4	B	130	10	DSO
79	7	22	16139	N30 W43	332	2300	3.0	20741	N31 W47	335	(AP)	4	B	50	6	CSO
79	7	23	16139	N30 W55	331	2000	3.0	20741	N31 W59	334	(AP)	4	B	60	3	CSO
79	7	24	16139	N30 W68	332	1800	3.0	20741	N30 W72	334	(AP)	2	B	30	2	CAO
79	7	26	16139	N30 W90	327	400	1.0									

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16147 CMP DATE 19.7 RETURN OF REGION 16084 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	7	14	16147	N18	E72	324	400	1.5
79	7	15	16147	N17	E58	324	400	1.0
79	7	16	16147	N18	E43	327	500	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 16155 CMP DATE 20.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	7	15	16155	S21	E63	319	100	1.5
79	7	16	16155	S21	E52	318	200	1.5
79	7	17	16155	S21	E38	318	200	2.0
79	7	18	16155	S21	E26	317	300	1.5
79	7	19	16155	S21	E12	318	300	1.5
79	7	20	16155	S20	W03	319	800	3.0
79	7	21	16155	S20	W17	320	1000	3.0
79	7	22	16155	S20	W30	319	1200	3.0
79	7		16155					
79	7	23	16155	S20	W44	320	1000	3.0
79	7		16155					
79	7	24	16155	S18	W57	321	700	2.5
79	7		16155					
79	7	25	16155					
79	7		16155					
79	7	26	16155	S20	W88	325	200	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20751	S20	E32	321	AP	1	R	10	1	AXX
20759	S20	E07	319	(B)	3	B	20	4	BXO
20759	S20	W06	320	B	3	B	40	18	DRI
20759	S19	W17	319	(B)	4	B	200	26	DAI
20759	S20	W29	317	(BF)	3				
20763B	S17	W37	325	(AP)	4	B	120	15	DSO
20759	S20	W43	318	(AF)	3	B	80	7	EAO
20763B	S17	W52	327	(AP)	3				
20759	S21	W56	318	(AF)	2				
20763B	S17	W66	328	(AP)	2	B	90	8	DAO
20759	S20	W67	317	(AF)	2				
20763B	S17	W78	328	(AP)	2	B	50	2	DSO

MCMATH REGION 16148 CMP DATE 21.4 RETURN OF REGION 16088 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	7	15	16148	S05	E77	305	2000	2.5
79	7	16	16148	S04	E65	305	2000	2.5
79	7	17	16148	S04	E53	303	2500	2.5
79	7	18	16148	S04	E40	303	2500	2.5
79	7	19	16148	S04	E25	305	2500	2.5
79	7		16148					
79	7	20	16148	S04	E11	305	2500	3.0
79	7		16148					
79	7	21	16148	S04	W03	306	2500	3.0
79	7		16148					
79	7	22	16148	S04	W16	305	2500	2.0
79	7		16148					
79	7	23	16148	S04	W30	306	2000	2.0
79	7	24	16148	S04	W42	306	2000	2.5
79	7	26	16148	S04	W68	305	800	1.5
79	7	27	16148	S03	W80	304	800	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20748	S04	E71	311	(AP)	3				
20748	S04	E62	307	(B)	4	B	140	3	HSX
20748	S04	E49	304	(B)	4	R	150	15	ESO
20748	S04	E37	304	(BP)	4	B	250	16	ESI
20748	S05	E14	312	(AP)	4				
20760	S05	E27	299	(AF)	3	B	150	16	FSO
20748	S05	E01	313	AP	4				
20760	S04	E14	300	AF	3				
20748	S04	W12	314	(AP)	4				
20760	S04	E03	299	(B)	3	B	140	10	FSO
20748	S04	W26	314	(AP)	4	B	90	6	FSO
20760	S04	W11	299	(AF)	2				
20748	S04	W39	314	(AP)	3	B	40	2	HSX
20748	S04	W53	315	(AP)	2	B	30	2	HSX

MCMATH REGION 16156 CMP DATE 22.1

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	7	17	16156	N29	E64	292	100	1.0
79	7	18	16156	N29	E50	293	400	2.5
79	7	19	16156	N30	E37	293	900	3.0
79	7	20	16156	N30	E24	292	1200	3.0
79	7	21	16156	N31	E07	296	1200	3.5
79	7	22	16156	N31	W07	296	1100	2.0
79	7	23	16156	N31	W20	296	1100	3.0
79	7	24	16156	N31	W33	297	1300	3.5
79	7	25	16156					
79	7	26	16156	N32	W60	297	1200	3.0
79	7	27	16156	N33	W72	296	1300	2.5
79	7	28	16156	N33	W85	295	1400	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20752	N30	E57	296	B	1				
20752	N31	E46	295	(B)	3	B	70	7	CRX
20752	N31	E32	294	(B)	4	B	80	11	CSO
20752	N31	E19	295	BP	4	B	80	10	DSO
20752	N31	E06	296	(B)	4	B	70	6	DSO
20752	N31	W10	298	(BP)	4	B	70	4	CAO
20752	N32	W23	298	(B)	4	B	80	11	DSO
20752	N32	W36	298	(BY)	4	B	100	13	DSI
20752	N32	W48	298	(BY)	4	B	170	10	DSI
20752	N32	W59	296	(BP)	4	B	120	7	EAO
20752	N32	W72	295	(BP)	3	B	40	9	CRO

MCMATH REGION 16166 CMP DATE 23.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	7	20	16166	S06	E36	280	200	1.5
79	7	21	16166	S06	E22	281	500	2.5
79	7	22	16166	S05	E08	281	900	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20762	S07	E32	282	AP	1				
20762	S05	E19	283	(B)	3	B	50	12	DSO
20762	S06	E06	282	(BY)	3	B	100	28	DSO

CONTD

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16166 (CONT) CMP DATE 23.2

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	23	16166	S05 W06	282	900	3.0	20762	S06 W06	281	(AP)	3	B	140	28	DKI
79	7	24	16166	S05 W19	283	1200	3.0	20762	S06 W22	284	(D)	2	B	40	29	CAC
79	7	25	16166					20762	S06 W34	284	(BY)	3	B	20	9	CAO
79	7	26	16166	S05 W46	283	1000	2.5	20762	S06 W47	284	(B)	3	B	30	2	CRO
79	7	27	16166	S05 W58	282	900	2.5	20762	S07 W59	282	(B)	2				
79	7	28	16166	S06 W71	281	900	3.0	20762	S07 W76	286	(B)	2	B	20	3	BXO
79	7	29	16166	S06 W84	281	700	2.0									

MCMATH REGION 16159 CMP DATE 23.8 RETURN OF REGION 16109 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	18	16159	S13 E72	271	100	1.0									
79	7	19	16159	S12 E58	272	300	1.0									
79	7	20	16159	S11 E44	272	300	1.0									
79	7	21	16159	S10 E30	273	400	1.5									
79	7	22	16159	S09 E17	272	400	1.5									
79	7	23	16159	S09 E04	272	300	1.0									
79	7	24	16159	S09 W10	274	300	1.0									
79	7	26	16159	S10 W37	274	300	1.5									
79	7	27	16159	S09 W49	273	300	1.5									
79	7	28	16159	S09 W62	272	200	1.0									
79	7	29	16159	S09 W76	273	200	1.0									

MCMATH REGION 16158 CMP DATE 24.0

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	18	16158	N23 E76	267	600	1.0									
79	7	19	16158	N24 E63	267	600	1.0									
79	7	20	16158	N24 E47	269	700	1.0									
79	7	21	16158	N24 E35	268	900	1.0									
79	7	22	16158	N23 E21	268	1000	1.5									
79	7	23	16158	N23 E06	270	800	1.5	20766	N23 E08	267	AP	1				
79	7	24	16158	N23 W07	271	600	1.5									
79	7	26	16158	N23 W32	269	600	1.5									
79	7	27	16158	N23 W44	268	500	1.5									
79	7	28	16158	N24 W57	267	700	1.0									
79	7	29	16158	N24 W70	267	700	1.0									
79	7	30	16158	N26 W80	265	200	1.0									

MCMATH REGION 16163 CMP DATE 24.0

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	19	16163	N31 E59	271	100	1.5									
79	7	20	16163	N31 E46	270	100	1.0	20763A	N30 E41	273	AP	2	B	10	1	AXX
79	7	21	16163	N31 E32	271	100	1.5									

MCMATH REGION 16153 CMP DATE 24.1

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	16	16153	N11 E90	280	200	1.0									
79	7	17	16153	N10 E84	272	1100	1.5	20753	N11 E76	277	(AP)	4	R	60	1	HSX
79	7	18	16153	N10 E72	271	3300	2.5	20753	N11 E64	277	(AP)	4	B	80	1	HSX
79	7	19	16153	N12 E60	270	3700	2.5	20753	N11 E49	277	(AP)	4	B	110	4	CSO
79	7		16153					20761	N11 E60	266	(B)	2				
79	7	20	16153	N12 E48	268	3700	2.5	20753	N11 E37	277	AP	4	B	140	5	DSO
79	7		16153					20761	N12 E46	268	B	2				
79	7	21	16153	N12 E33	270	3300	2.5	20753	N10 E23	279	(AP)	4				
79	7		16153					20761	N11 E31	271	(AP)	3	B	100	8	DSO
79	7	22	16153	N12 E20	269	3000	2.0	20753	N10 E10	278	(AP)	4	B	100	3	CSO
79	7	23	16153	N12 E07	269	2700	2.5	20753	N10 W04	279	(AP)	5	B	70	1	HSX
79	7		16153					20767	N13 E13	262	B	2	B	10	2	BXO
79	7	24	16153	N13 W06	270	2300	2.5	20753	N10 W17	279	(AP)	5	B	70	1	HSX
79	7	25	16153					20753	N10 W29	279	(AP)	4	B	70	2	HSX
79	7	26	16153	N13 W32	269	1700	3.0	20753	N10 W42	279	(AP)	4				
79	7		16153					20772	N13 W26	263	(AP)	2	B	50	4	CSO
79	7	27	16153	N13 W46	270	1900	3.0	20753	N10 W56	279	(AP)	3	B	50	1	HSX
79	7	28	16153	N13 W59	269	1800	3.0	20753	N10 W69	279	(AP)	3	B	50	1	HSX

CONTD

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16153 (CONT) CMP DATE 24.1

				CALCIUM		PLAGE DATA			SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	29	16153	N13	W73	270	1800	2.5	20753	N10	W84	281	(AP)	2				
79	7	30	16153	N13	W84	269	1200	1.0										

MCMATH REGION 16164 CMP DATE 26.1

				CALCIUM		PLAGE DATA			SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	20	16164	S15	E84	232	2000	2.5										
79	7	21	16164	S15	E69	234	1700	2.5										
79	7	22	16164	S15	E53	236	1800	2.5										
79	7	23	16164	S15	E40	236	1700	2.0		S14	E28				B	10	2	BXO
79	7	24	16164	S15	E24	240	1700	2.0	20769	S15	E18	244	(B)	3	B	60	15	CRI
79	7	25	16164						20769	S15	E04	246	(BY)	5	B	190	30	DSI
79	7	26	16164	S14	W06	243	1700	2.5	20769	S15	W08	245	(BP)	5	B	260	25	DSI
79	7	27	16164	S15	W20	244	1900	3.0	20769	S15	W22	245	(BY)	4	B	210	38	ESI
79	7	28	16164	S14	W33	243	1900	3.5	20769	S15	W35	245	(BY)	5	B	250	18	ESI
79	7	29	16164	S14	W46	243	1900	3.0	20769	S15	W48	245	(BY)	5				
79	7	30	16164	S14	W59	244	2000	3.5	20769	S15	W63	247	(D)	4				
79	7	31	16164	S14	W72	243	1500	3.5	20769	S15	W76	247	(BP)	2				
79	8	01	16164	S14	W86		600	2.0										

MCMATH REGION 16167 CMP DATE 27.6 RETURN OF REGION 16104 ROTATION 3

				CALCIUM		PLAGE DATA			SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	21	16167	N17	E81	222	500	1.0										
79	7	22	16167	N16	E67	222	2100	2.0	20765	N14	E74	214	(AP)	3	B	90	1	HSX
79	7	23	16167	N16	E55	221	1600	2.0	20765	N14	E61	214	(AP)	3	B	60	1	HSX
79	7	24	16167	N17	E42	222	1400	2.0	20765	N14	E48	214	(AP)	4	B	50	1	HSX
79	7	25	16167						20765	N14	E37	213	(AP)	4	B	60	1	HSX
79	7	26	16167	N17	E15	222	1400	2.0	20765	N14	E23	214	(AP)	5	B	60	1	HSX
79	7	27	16167	N17	E01	223	1300	2.0	20765	N14	E11	212	(AP)	4	B	50	2	HSX
79	7	28	16167	N17	W11	221	1300	2.0	20765	N14	W04	214	(AP)	4	B	50	1	HSX
79	7	29	16167	N17	W24	221	1400	2.0	20765	N14	W16	213	(AP)	3	B	50	1	HSX
79	7		16167						20777	N13	W24	221	(AP)	2				
79	7	30	16167	N17	W37	222	1200	2.0	20765	N14	W28	212	(AP)	4				
79	7	31	16167	N17	W52	223	900	2.0	20765	N14	W43	214	(AP)	3				
79	8	01	16167	N17	W65		900	1.5	20765	N14	W56		(AP)	3	B	20	1	H
79	8	02	16167	N16	W75		300	1.0	20765	N14	W69		(AP)	2	B	20	1	H
79	8	03	16167	N16	W88		100	1.0										

MCMATH REGION 16169 CMP DATE 27.6

				CALCIUM		PLAGE DATA			SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	23	16169	S15	E56	220	300	2.0	20768	S14	E53	222	(B)	2	B	30	3	DRO
79	7	24	16169	S15	E43	221	1100	2.5	20768	S14	E38	224	(BY)	3	B	70	9	DSO
79	7	25	16169						20768	S14	E25	225	(B)	3	B	80	16	DSI
79	7	26	16169	S15	E14	223	1400	2.5	20768	S15	E13	224	(B)	4	B	80	16	DAO
79	7	27	16169	S15	E01	223	1400	2.5	20768	S15	W02	225	(B)	4	B	70	16	DAO
79	7	28	16169	S15	W13	223	1500	3.0	20768	S14	W15	225	(BY)	4	B	70	22	DAI
79	7	29	16169	S15	W26	223	1400	3.0	20768	S14	W27	224	(BP)	3				
79	7	30	16169	S14	W39	224	1500	3.0	20768	S14	W43	227	(BP)	4				
79	7	31	16169	S15	W53	224	1000	3.0	20768	S14	W57	228	(AP)	2				
79	8	01	16169	S16	W66		900	3.0	20768	S15	W68		(AP)	2	B	20	2	B
79	8	02	16169	S16	W79		1400	2.5										

MCMATH REGION 16190 CMP DATE 27.6

				CALCIUM		PLAGE DATA			SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	29	16190	N31	W26	223	200	1.0										
79	7	30	16190	N32	W36	221	300	1.5										
79	7	31	16190	N31	W50	221	400	2.0										
79	8	01	16190	N30	W61		700	2.0										
79	8	02	16190	N31	W74		300	2.0										

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16196 CMP DATE 28.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	8	02	16196	N27 W62		200	2.0						B	20	2	B
79	8	03	16196	N27 W75		600	3.5	20786	N27 W77		(B)	3	B	20	2	B
79	8	04	16196	N27 W87		600	3.0									

MCMATH REGION 16197 CMP DATE 29.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	8	02	16197	N59 W48		100	1.0									
79	8	03	16197	N59 W59		100	1.0									
79	8	04	16197	N59 W70		100	1.0									

MCMATH REGION 16170 CMP DATE 29.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	23	16170	N20 E80	196	400	1.0									
79	7	24	16170	N21 E66	198	400	2.0									
79	7	26	16170	N21 E39	198	300	2.0									
79	7	27	16170	N21 E26	198	300	1.5									
79	7	28	16170	N21 E13	197	300	2.0		N16 E19				B	60	29	CRI
79	7	29	16170	N22 E00	197	300	2.0		N15 E05				B	40	23	BXI
79	7	30	16170	N22 W12	197	300	2.0									
79	7	31	16170	N22 W26	197	500	1.5									
79	8	01	16170	N22 W39		400	1.5									
79	8	02	16170	N23 W52		400	1.0									
79	8	03	16170	N24 W65		300	1.0									

MCMATH REGION 16171 CMP DATE 30.6 RETURN OF REGION 16117 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	23	16171	N12 E85	191	300	1.5									
79	7	24	16171	N15 E80	184	2800	3.5	20770	N15 E79	183	(B)	3	B	60	6	CRO
79	7	25	16171					20770	N15 E62	188	(B)	3	B	120	22	CAI
79	7	26	16171	N17 E53	184	4000	3.5	20770	N14 E47	190	(D)	3	B	170	19	DAI
79	7	27	16171	N16 E41	183	4200	3.5	20770	N15 E35	188	(B)	3	B	100	27	DAI
79	7	28	16171	N17 E29	181	4500	3.5	20770	N15 E22	188	(B)	3				
79	7	29	16171	N17 E16	181	4500	3.5	20770	N15 E07	190	(B)	3				
79	7	30	16171	N18 E01	184	4500	3.0	20770	N15 W05	189	(B)	4				
79	7	31	16171	N19 W14	185	4500	3.0	20770	N15 W17	188	(B)	3				
79	8	01	16171	N19 W25		4200	3.0	20770	N15 W30		(B)	3	B	40	11	C
79	8	02	16171	N18 W40		4500	3.5	20770	N17 W44		(B)	2	B	30	19	B
79	8	03	16171	N18 W52		4700	3.5	20770	N17 W59		(B)	4	B	160	9	D
79	8	03	16171					20787	N13 W51		(AP)	2	B	10	2	A
79	8	04	16171	N18 W65		4500	3.5	20770	N17 W72		(B)	4	B	100	9	D
79	8	04	16171					20787	N14 W65		(AP)	2	B		1	A
79	8	05	16171	N18 W80		2000	3.0									
79	8	06	16171	N22 W83		800	1.0									

MCMATH REGION 16173 CMP DATE 31.0 RETURN OF REGION 16111 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	26	16173	N06 E58	179	500	1.5									
79	7	27	16173	N06 E45	179	500	1.5									
79	7	28	16173	N06 E32	178	300	2.0									
79	7	29	16173	N06 E18	179	300	2.0									
79	7	30	16173	N06 E06	179	300	2.0									
79	7	31	16173	N06 W09	180	300	1.5									
79	8	01	16173	N06 W22		300	1.5									
79	8	02	16173	N06 W35		300	1.5									
79	8	03	16173	N06 W49		300	1.5									
79	8	04	16173	N06 W63		300	1.0									

REGIONS OF SOLAR ACTIVITY

JULY 1979

MCMATH REGION 16174 CMP DATE 31.9

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	7	25	16174						20771	S19	E71	179	(AP)	3	B	60	1	HSX
79	7	26	16174	S20	E68	169	1000	2.5	20771	S20	E60	177	(AP)	3	B	60	2	HSX
79	7		16174						20773	S22	E75	162	(AP)	2	B	140	1	HSX
79	7	27	16174	S20	E54	170	1200	2.0	20771	S19	E48	175	(AP)	3	B	60	1	HSX
79	7		16174						20773	S21	E62	161	(AP)	3	B	80	1	HSX
79	7	28	16174	S20	E43	167	1900	2.5	20771	S19	E34	176	(AP)	3	B	50	2	HSX
79	7		16174						20773	S21	E50	160	(AP)	4	B	140	4	CSO
79	7	29	16174	S19	E30	167	2700	3.0	20771	S19	E21	176	(AP)	3				
79	7		16174						20773	S22	E38	159	(AP)	5				
79	7	30	16174	S20	E18	167	2500	2.5	20771	S19	E08	176	(AP)	3				
79	7		16174						20773	S21	E25	159	(AP)	5				
79	7	31	16174	S19	E04	167	2800	2.5	20771	S19	W05	176	(AP)	2	B	10	1	AXX
79	7		16174						20773	S21	E12	159	(AP)	4	B	230	14	DSO
79	8	01	16174	S19	W09		2400	3.0							B	190	18	D
79	8	02	16174	S19	W21		2600	3.0							B	160	10	D
79	8	03	16174	S20	W33		2700	3.0							B	140	6	C
79	8	04	16174	S20	W46		2800	2.0							B	160	1	H
79	8	05	16174	S20	W59		2000	2.0							B	90	1	H
79	8	06	16174	S20	W70		800	2.5							B	100	1	H
79	8	07	16174	S20	W85		800	1.5							B	90	1	H

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT THE MCMATH-HULBERT OBSERVATORY ON JULY 1 AND 25, 1979. SUNSPOT OBSERVATIONS WERE MADE AT MT. WILSON ON EVERY DAY OF JULY 1979.

DAILY CALCIUM PLAGE INDEX

JULY 1979

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
79	7	1	*	79	7	11	46.1	79	7	21	39.8
79	7	2	64.3	79	7	12	40.3	79	7	22	35.0
79	7	3	64.2	79	7	13	36.7	79	7	23	30.2
79	7	4	70.6	79	7	14	30.2	79	7	24	28.9
79	7	5	71.7	79	7	15	27.8	79	7	25	*
79	7	6	75.4	79	7	16	25.0	79	7	26	28.3
79	7	7	73.9	79	7	17	23.4	79	7	27	32.0
79	7	8	72.1	79	7	18	26.1	79	7	28	36.8
79	7	9	58.4	79	7	19	34.5	79	7	29	40.5
79	7	10	54.4	79	7	20	40.0	79	7	30	38.8
								79	7	31	36.6

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1979

	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	McMATH REGION
DAY	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
01	2307	2315	2312	1-	1				1					16117
02	1615	1645	1629	1-	1						1		*	
02	2013	2105	2039	1-	3	1			1		1		2010E	16122
03	0433	0518	0443	1-	3				1				*	
03	0500	0726	0530	1	3			3					*	
03	1221	1340	1240	1	3	3		3	1		1		1221	16122
03	1815	1935	1831	1-	1						1		1819	16111
03	2039	2109	2048	1-	1				1				2042	16117
03	2306	2327	2313	1-	1				1				2304	16111
04	0213	0430	0247	1-	1				1				*	
04	0607	0716	0617	1	5	4		5	2				0608	16122
04	0843	0955	0903	1-	5	3		4	2		1		0830	16112
04	1028	1116	1059	1-	1			1					1028	16117
04	1132	1300	1140	1+	5	4		4	2		3		1134E	16124
04	1443	1512	1450	1-	1			1	1				1441	16122
04	1605	1638	1619U	1-	1	3		1					1601	16104
04	1914	2047	1939	1+	5				1	1	6		1905	16122
04	2215	2340	2228	1-	1						1		2216	16123
07	0441	0542	0452	1-	3	1			1				*	
07	0814	0845	0825	1	1			1	1				0816E	16125
08	0108	0206	0130	1-	1				1				0105	16123
08	1138	1210	1151	1-	3	2		1	2		1		1136E	16123
08	2021	2140	2034	1+	5	3			2	1	9		2027	16127
08	2209	2256	2227	1-	3	1			1		1		2201	16123
09	0030	0135	0046	1-	1				1				0033E	16127
09	1359	1440	1416	1-	5			1	2		1		1404E	16122
11	1516	1645	1532	1	5	4		4	3	1	7		1516	16123
12	0018	0112	0024	1-	3				1		1		0021	16123
13	0116	0155	0121	1-	1				1				0117E	16144
14	2202	2309	2212	1-	5	1			2		1		2206	16123
15	0119	0156	0124	1-	1				1				0122E	16123
15	1655	1740	1705	1-	5				1		5		1701E	16123
15	1745	1830	1752	1-	5	1			1		7		1744	16123
15	2021	2120	2045	1-	1						1		2023	16123
16	0041	0116	0049	1-	1				1				0040E	16123
19	1050	1115	1100	1-	1				1		1		1055	16148
19	1537	1558	1547	1-	1				1		1		1540E	16148
20	1825	1850	1830	1-	1						1		1826	16132
20	1941	2024	1946	1-	5	2			3	1	10		1931	16160
21	0128	0227D	0138	1	5	1			2				*	
21	0226	0340	0240	1+	5	1			2				0228	16161
21	0643	0746	0703	1-	5			1	1		1		0643	16161
21	1108	1215	1118	1-	5	2		2	3		2		*	
21	1340	1530	1357	1+	5	6		6	3	1	9		1343	16156
22	0413	0434D	0419	1-	1				1				*	
22	0434E	0457	0438	1-	1				1				*	
22	1050	1104D	1104	1-	1				1		1		*	
22	1151	1155	1127	1-	5	1		1	1		1		*	
22	1154	1230	1210	1-	1				1		1		*	
22	1304	1415	1325	1-	5			1	2		1		1303	16161
22	1629	1715	1638	1-	1				1		1		1629	16161
22	1738	1845	1747	1-	5	1			2		9		1732	16161
22	1923	2023	1934	1-	5				2		4		NF	
22	2111	0040D	2150	1-	5	1			2		4		2119E	16161
23	0756	0915	0827	1	5	2		1	2		1		0802E	16142
23	1130	1215	1145	1-	1				1		1		*	
23	1645	1800	1656	1-	5	2			2	1	5		1645	16166
23	2057	2200	2108	1-	5	2			2		1		NF	

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
24	0056	0152D	0113	1-	5			1	1		1		0058	16156
24	0152E	0300	0206	1-	3			1	1				0152	16156
24	0726E	0912	0809	2	5	3		4	2		1		NF	
24	0755	0855	0812	1-	3	2		4	1				0751	16156
24	1100	1145	1116	1-	3	1		1	1				*	
24	1510	1615	1523	1-	5	2		2	2	1	4		1507	16156
25	0128	0239	0136	1-	1				1				0125	16171
25	0251	0347	0300	1-	1				1				0249	16171
25	1539	1710	1551	1-	3			2					*	
25	1605	1700	1615	1-	5	2		1	3	1	7		1602	16166
25	1738	1815	1740	1-	3						2		1737	16166
26	0226	0254	0232	1-	1				1				0235E	16164
26	0923	1045	0955	1+	5	2			2		1		0923	16164
26	2237	2300	2241	1-	1				1				2237	16171
27	0857	1013	0919	1-	1				1				1853	16171
27	1154	1250	1205	1+	5	3		5	3		2		*	
27	1550	1642	1606	1-	3			2					*	
28	0332	0406	0345	1-	1				1				0334	16171
28	1712	1815	1722	1-	5	3			3	1	9		1707	16169
28	2211	2314	2216	1-	5	1			2		3		2207	16169
29	0000	0030	0005	1-	1				1				0000E	16172
29	0327	0516	0341	2	5	2		1	1				0326	16167
29	0450	0530		1-	1			1					*	
30	0233	0418	0254	1-	3	1			1				0227E	16171
30	1914	1925	1916	1-	1	1							1912	16164
31	0025	0101	0033	1-	1				1				0022	16164

NOTE: A48 is a new observer from Thornwood, New York submitting data for the first time.

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01-23	0000-2400 A5
01-06	0000-2400 TN
03	0630-1615 TM
06	1210-1554 TM
08	0246-1830 TM
09	0000-2400 TN
10	0210-1617 TM, 1000-1400 UM (16 kHz)
12	1624-1700 TM, 2330-2400 TM
13	0000-1534 TM
14-16	0814-2400 TM
16	0000-0123 TM, 1314-1816 TM, 2102-2400 TM
17	0000-1602 TM, 1000-1400 UM (16 kHz)
18	1050-2400 UM (13 kHz), 1052-2400 UM (10 kHz), 1926-1944 TM
19	0000-1155 UM (10 kHz), 0000-1210 UM (13 kHz), 0206-1600 TM
20	1206-1600 TM
21	0430-1600 UM (13 kHz)
22	0715-1400 UM (13 kHz)
24	1000-1400 UM (16 kHz)
26	0012-1540 TM
29	1052-1558 TM
30	1235-1615 TM
31	0030-1709 TM, 1000-1400 UM (16 kHz)

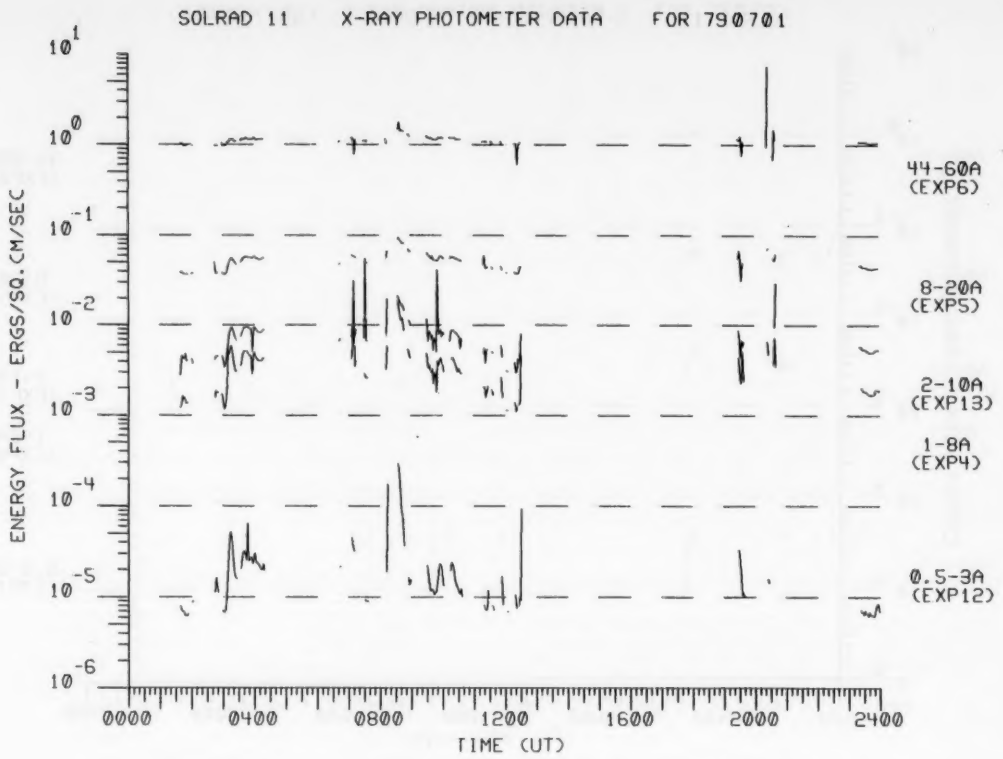
STATIONS REPORTING FOR JULY 1979

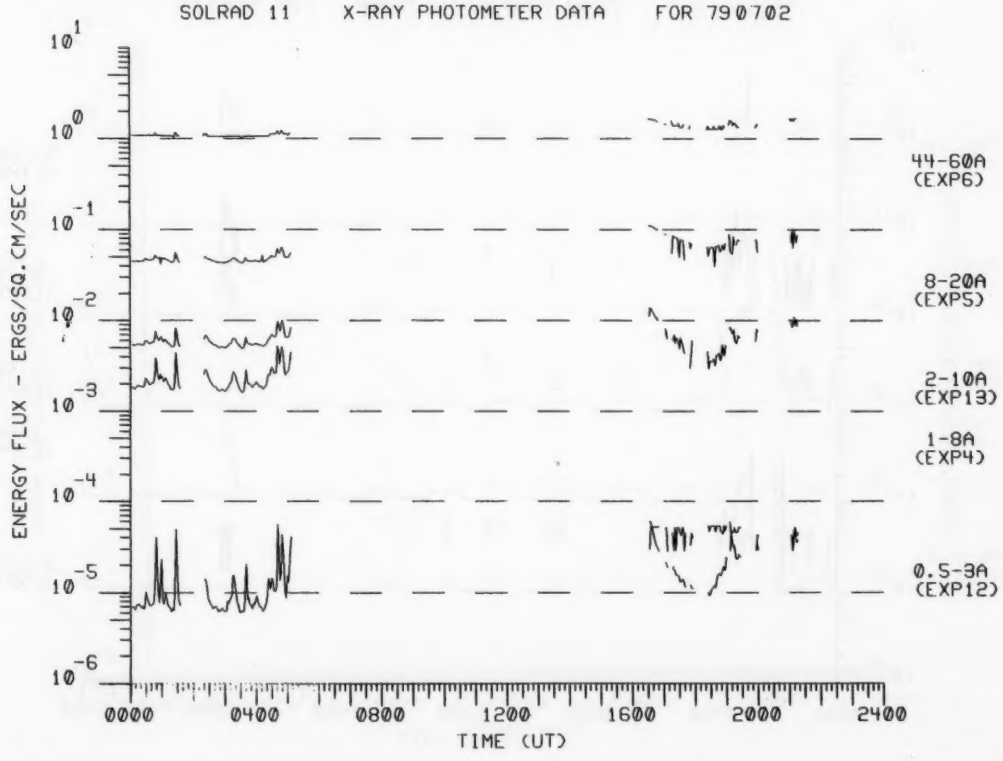
AAVSO (A1, A5, A19, A21, A26, A28, A31, A34, A45, A48) (SES) (A31) (SWF)
DARMSTADT (DA) (SWF)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JULUISRUH (JH) (SWF)
KUHLUNGSBORN (KU) (SEA, SPA)
MC MATH (MC) (SWF)
NEW JERSEY (NJ) (SES)
PANSKA VES (PU) (SWF, SEA, SES)
PRESTON (LO) (SEA)
SAO PAULO (UM) (SES, SPA)
SOFIA (SF) (SES)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
VSETIN (VS) (SEA)
ZILINA (ZL) (SEA)

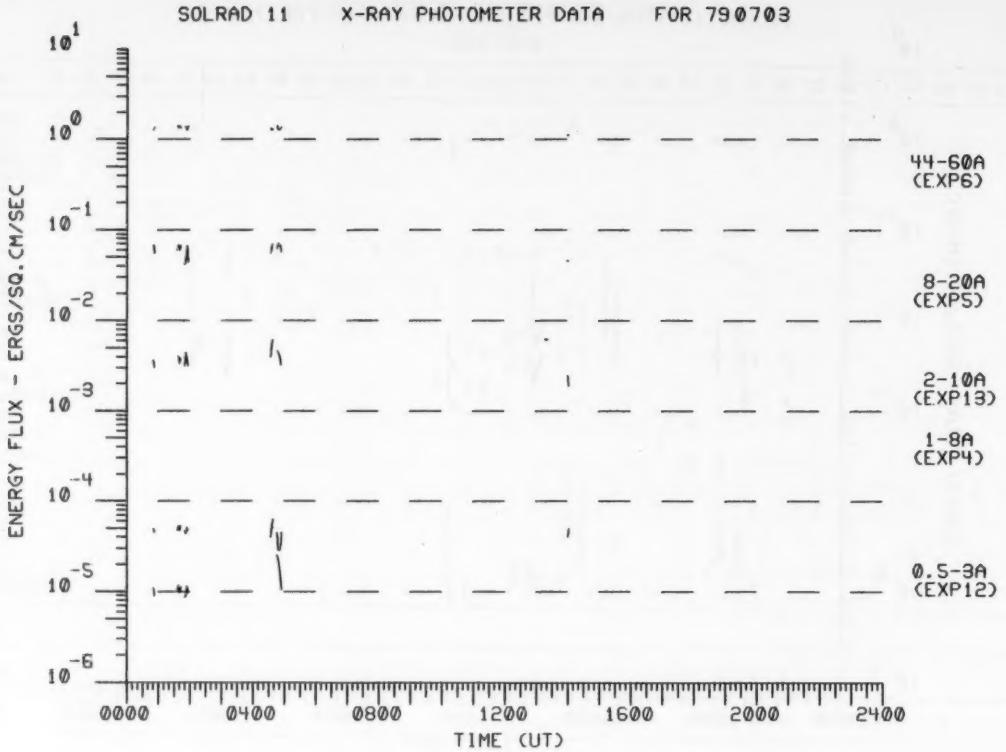
SIDs BY McMATH REGION

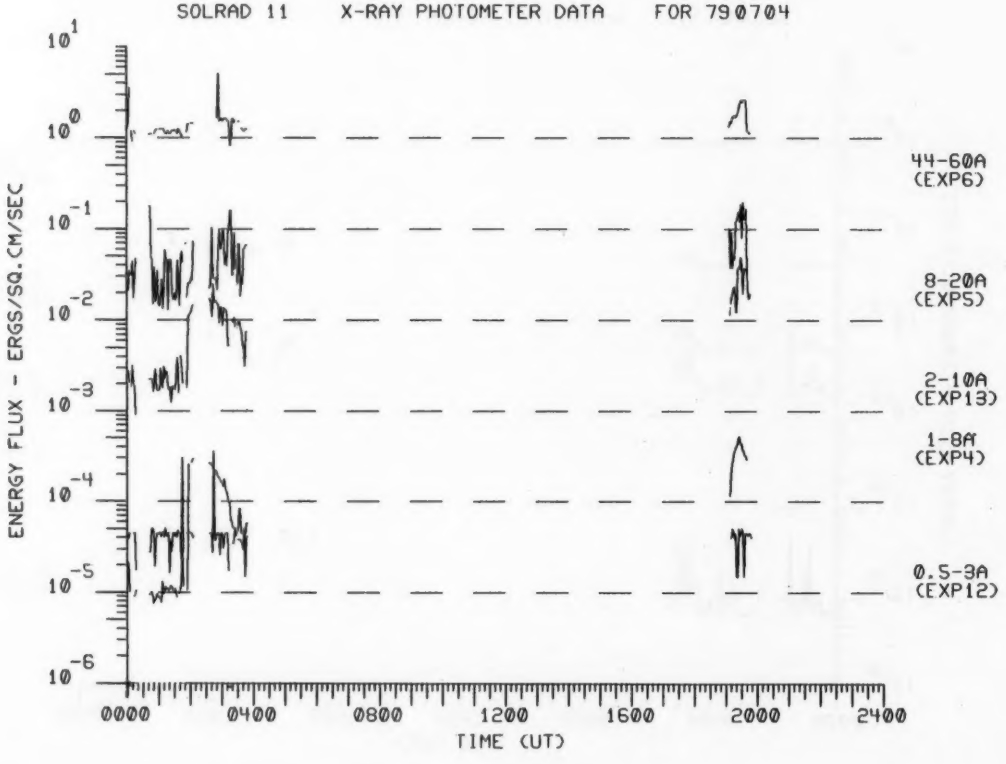
JULY 1979

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
16104				1																											
16117	1		1	1																											
16111			2																												
16112				1																											
16122		1	1	3					1																						
16123				1				3			1	1		1	4	1															
16124				1																											
16125							1																								
16127								1	1																						
16132																				1											
16142																							1								
16144													1																		
16148																			2												
16156																					1			4							
16160																				1											
16161																					2	4									
16164																										2				1	1
16166																							1		2						
16167																													1		
16169																												2			
16171																									2	1	1	1		1	
16172																													1		
X-RAY																															
UNKNOWN																						1	1	1							
NO FP		1	2	1			1														2	5	1	1	1		2		1		

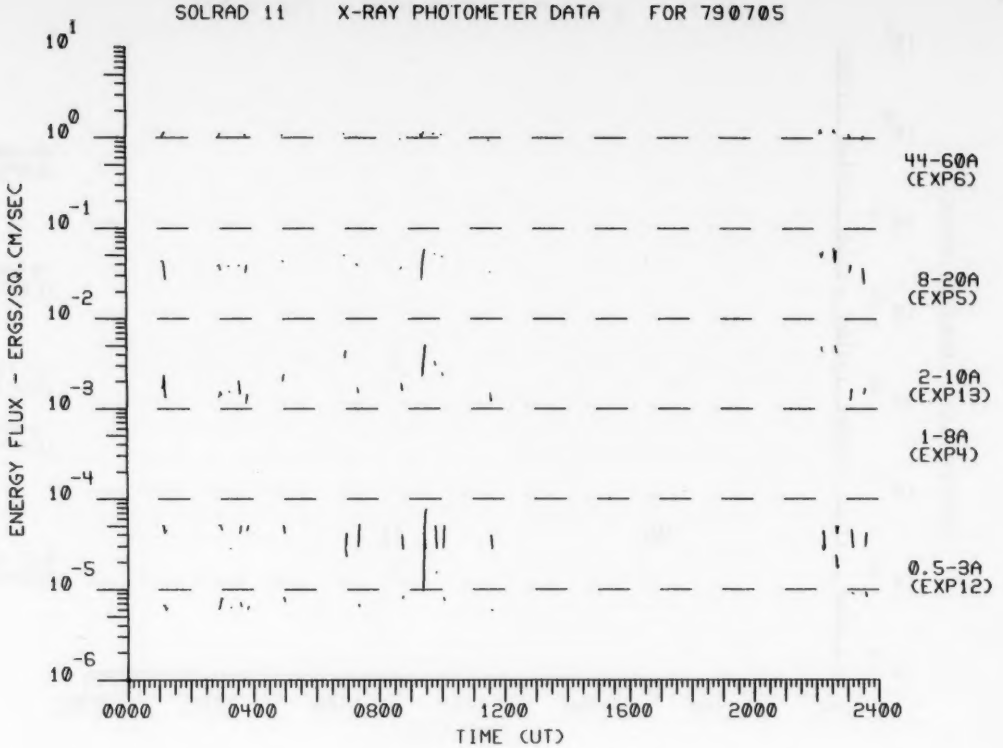

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790701
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790702
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

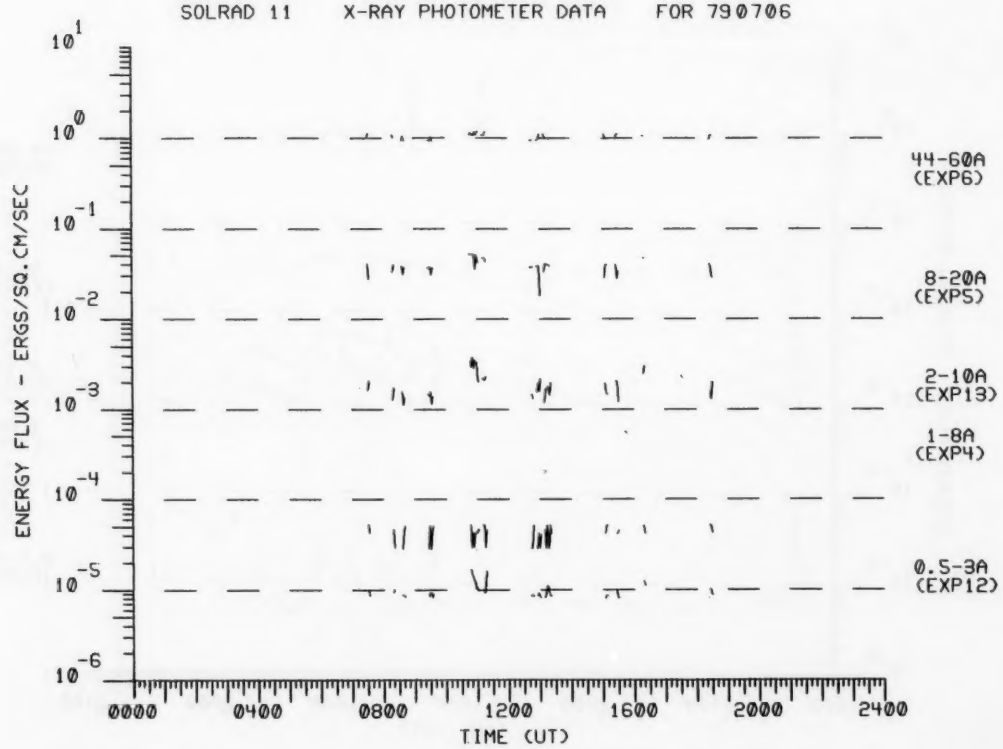

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790703
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

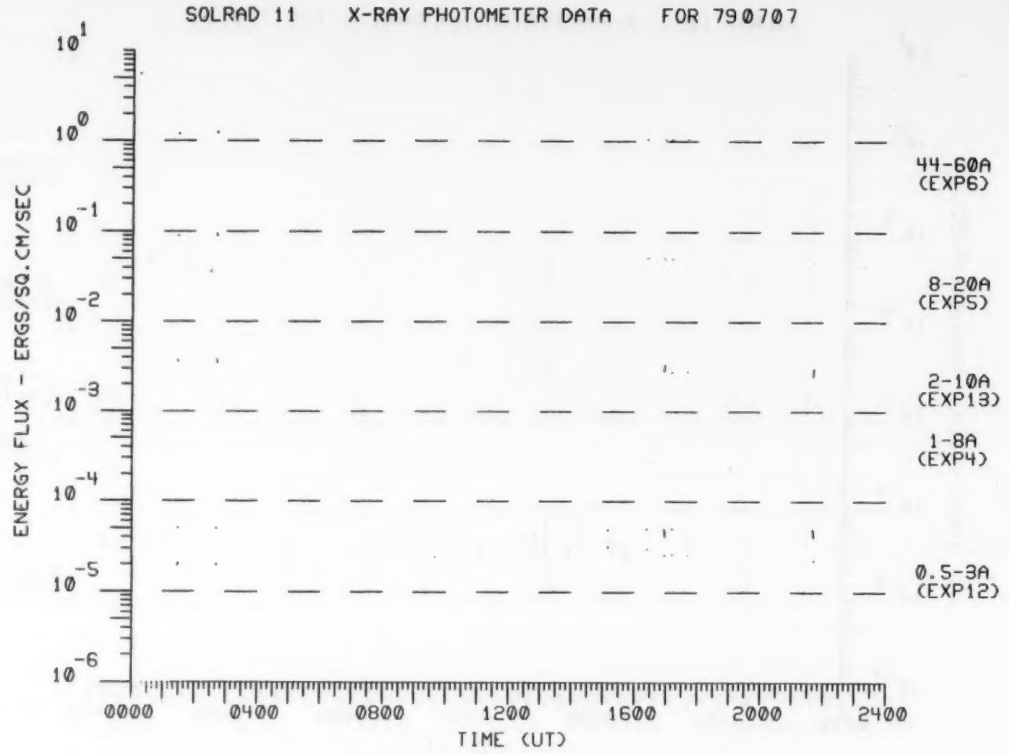

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790704
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

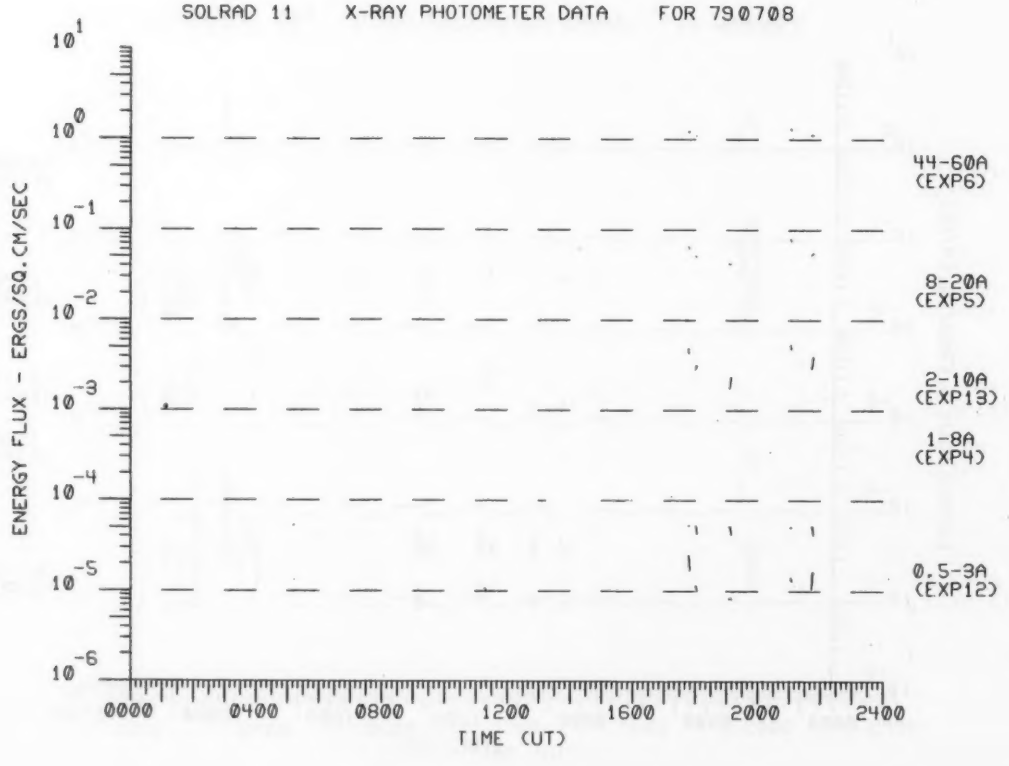
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790705

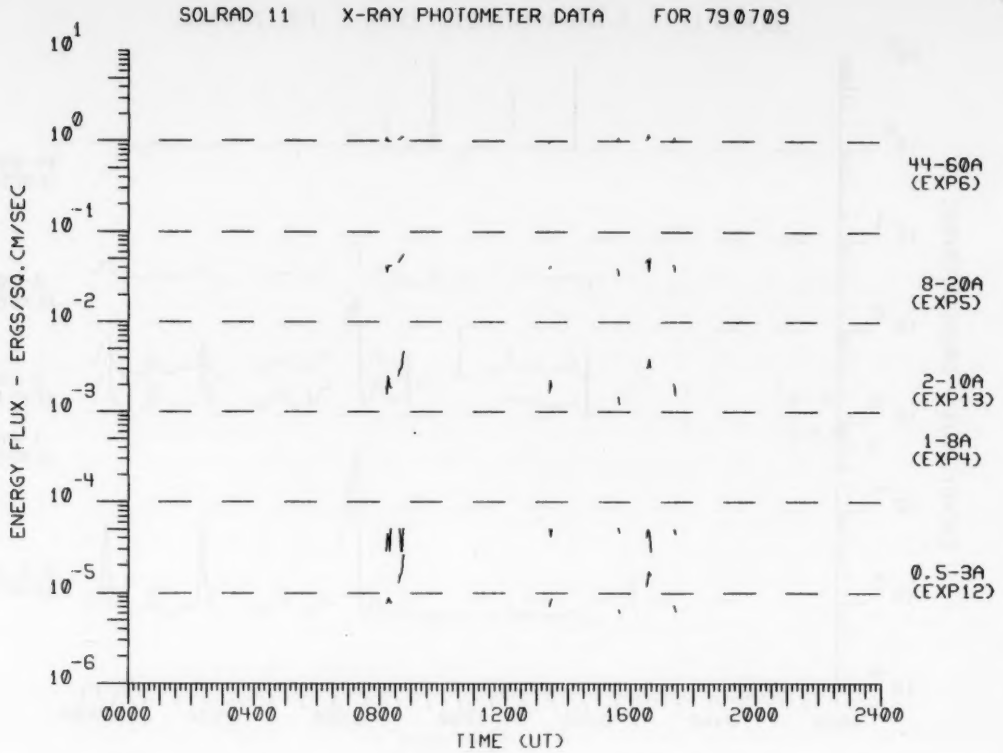


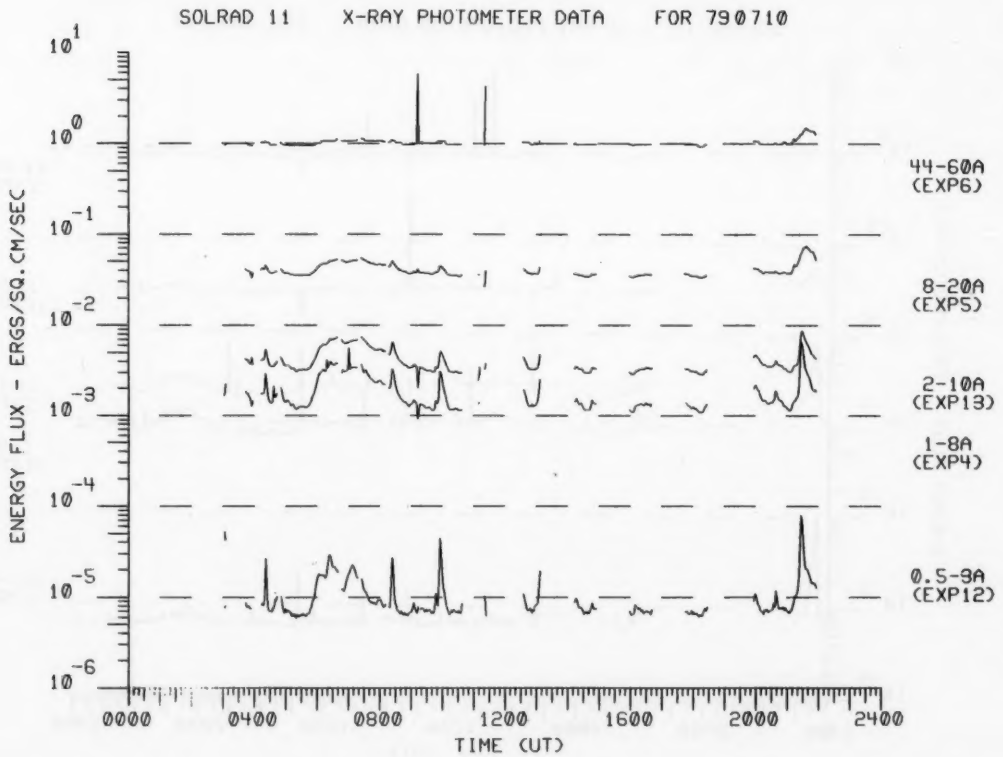
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790706

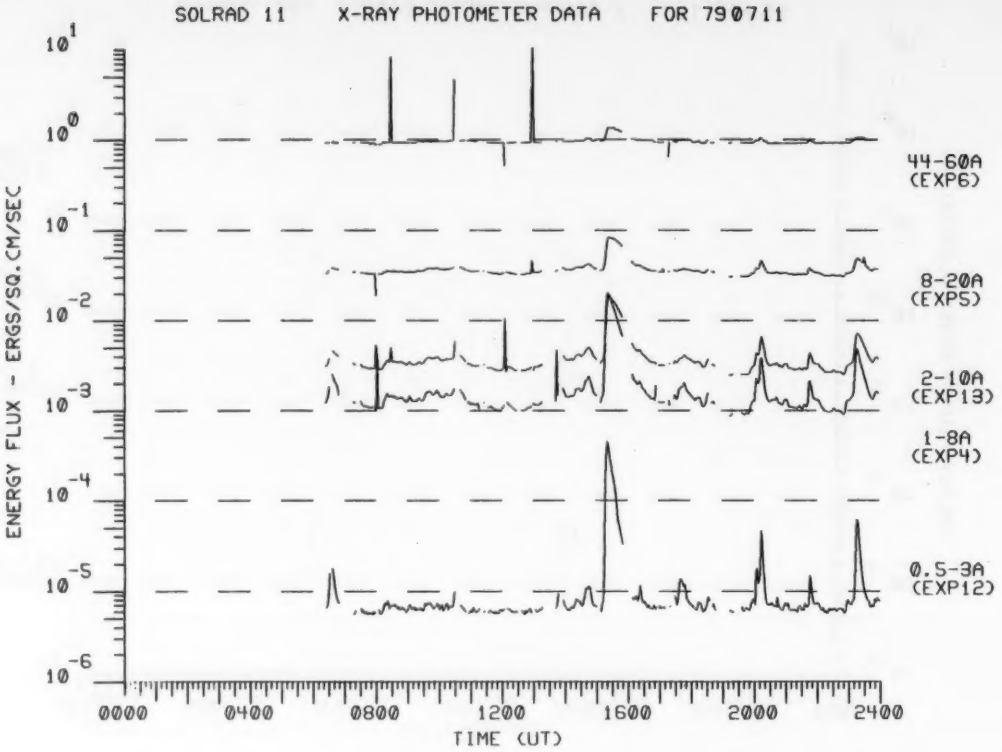


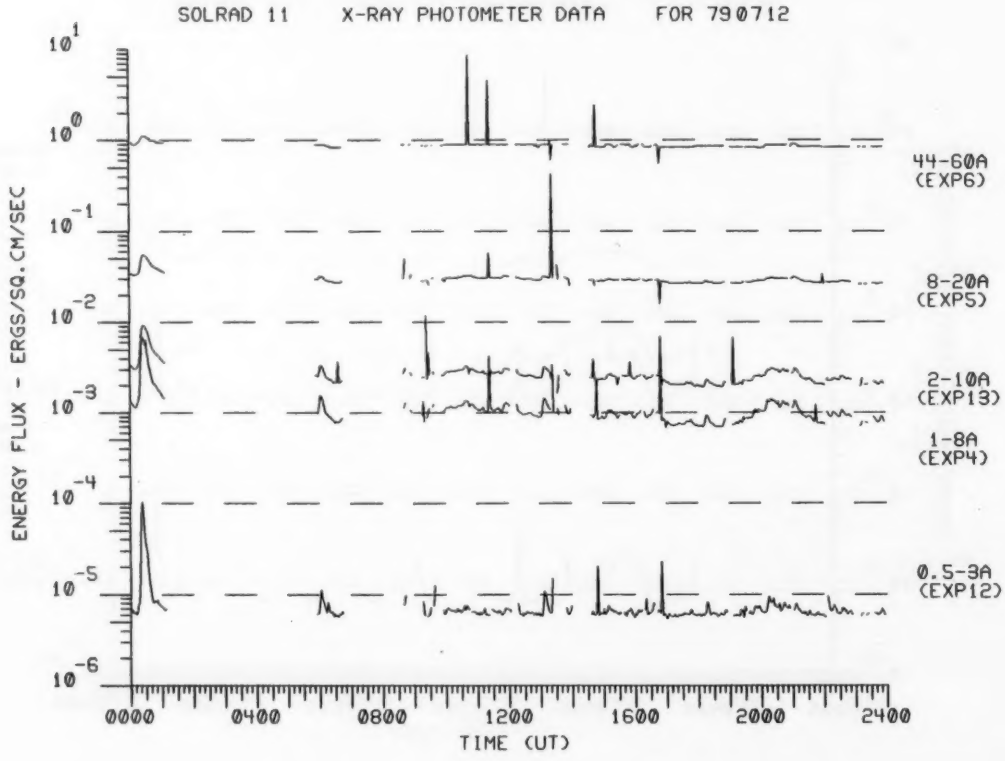

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790707
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

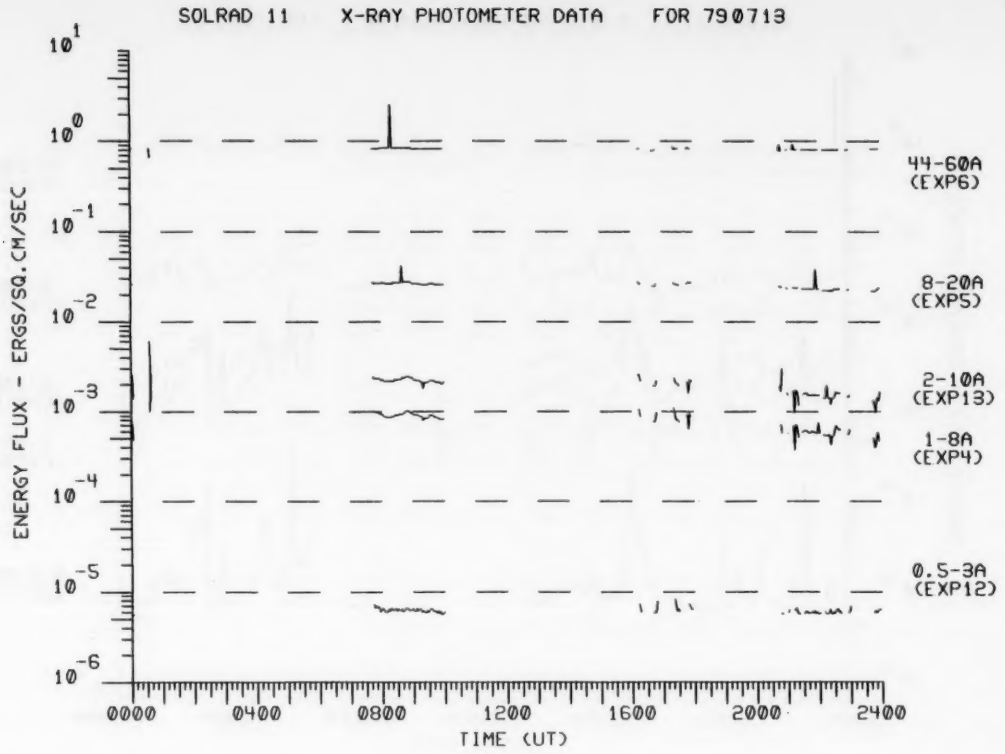

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790708
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

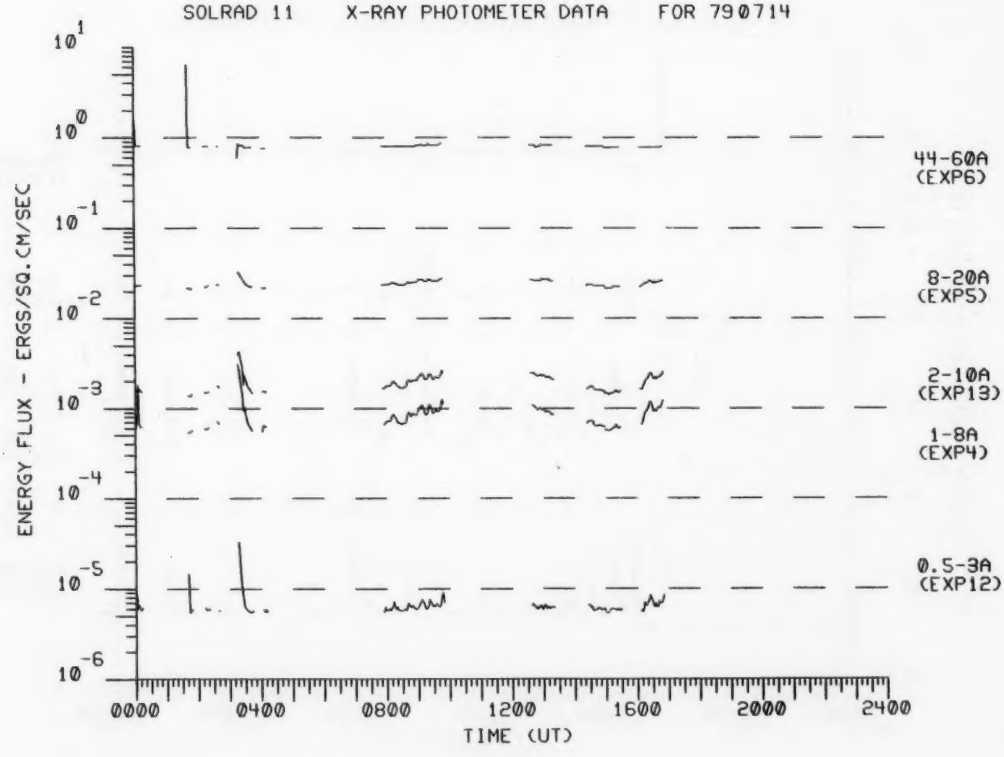

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790709
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

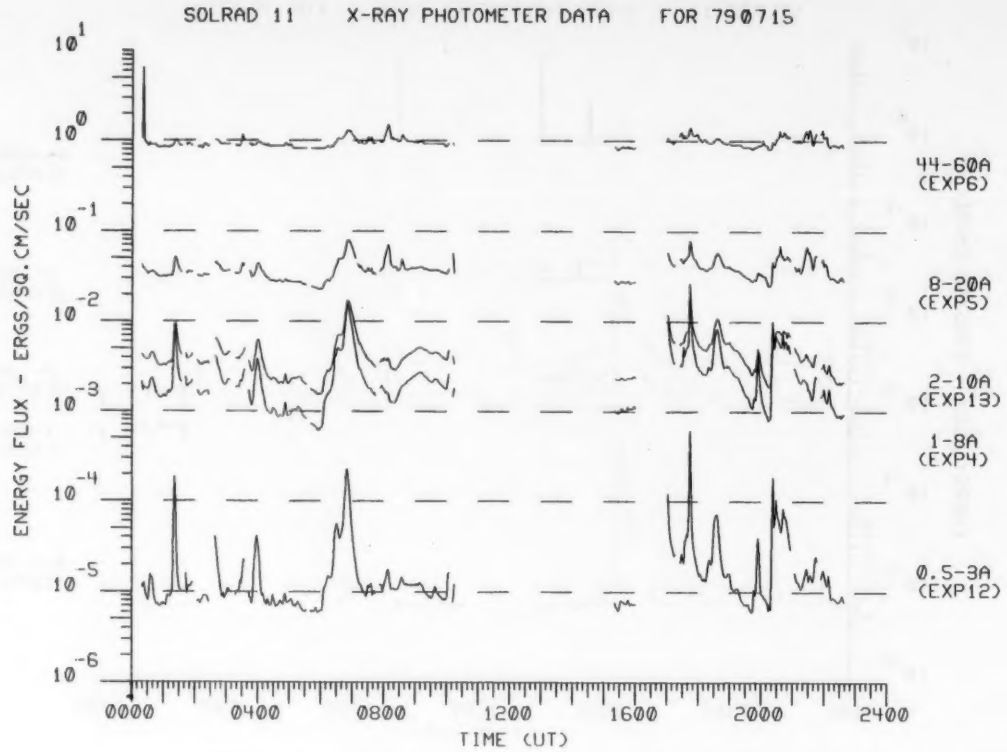

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790710
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

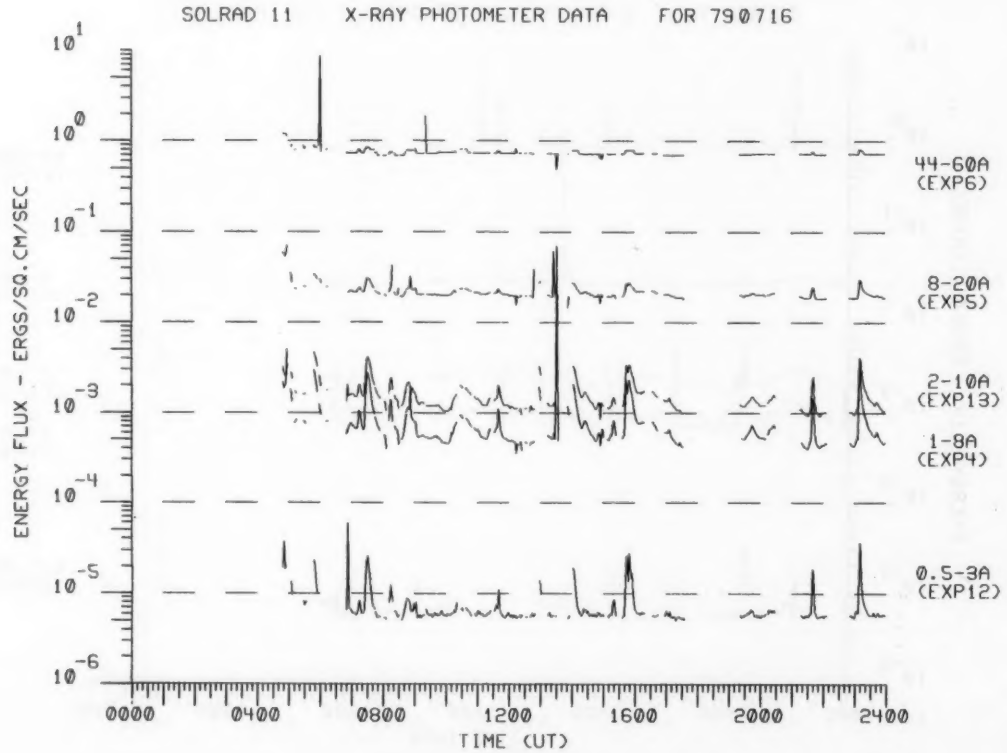

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790711
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

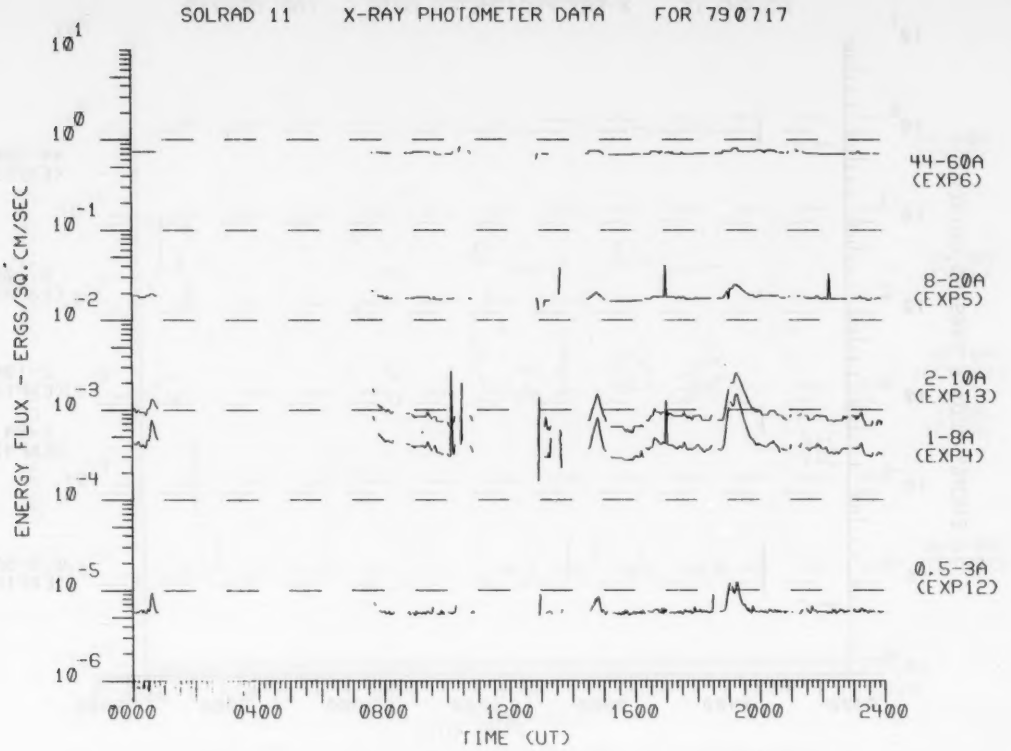

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790712
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

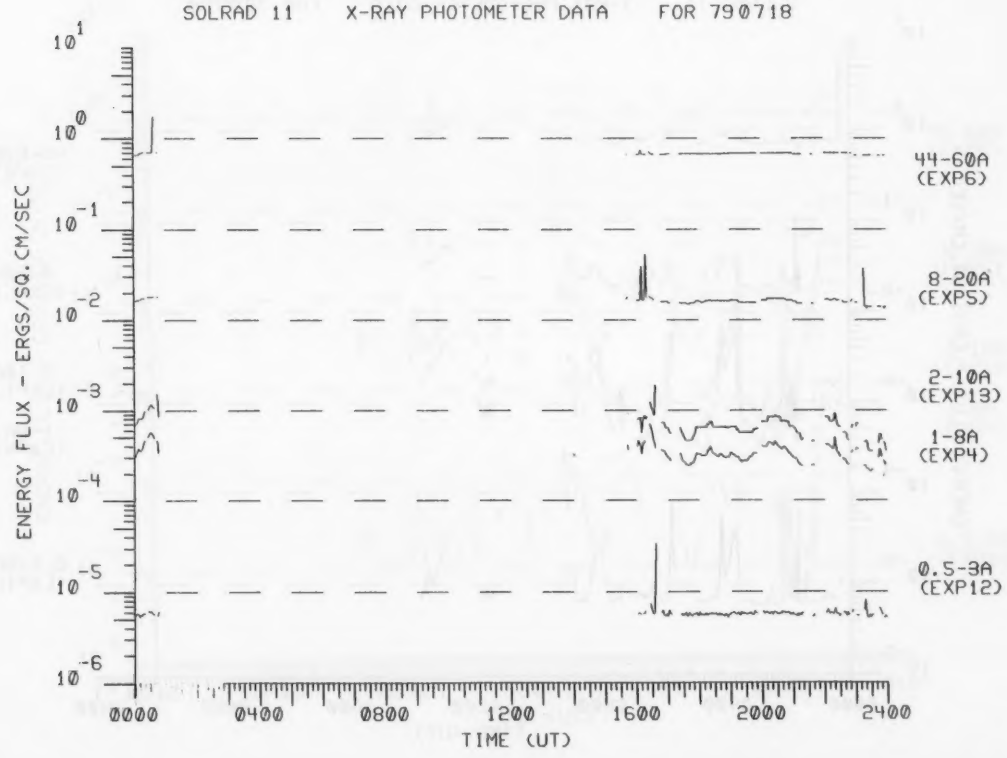

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790713
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

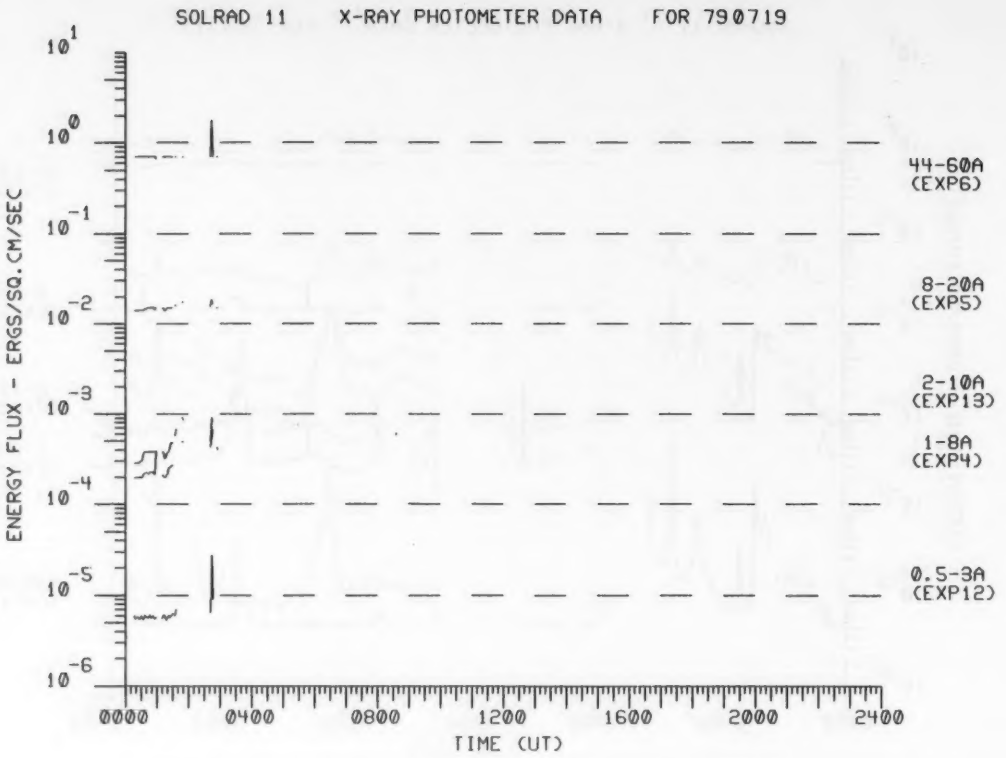

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790714
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

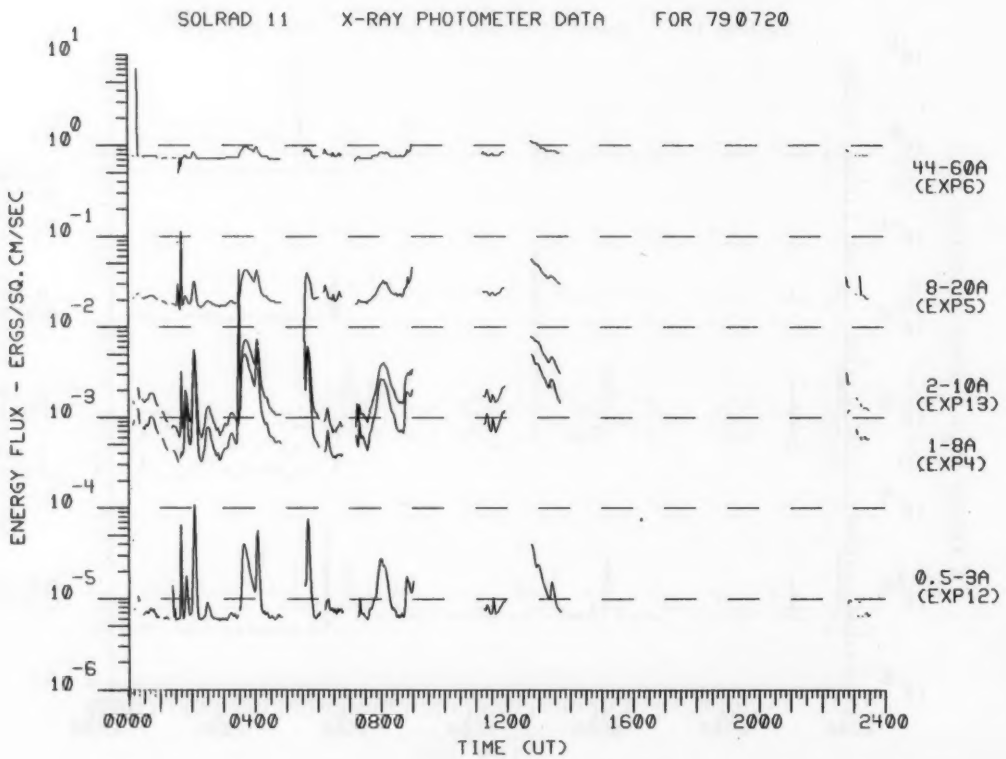

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790715
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

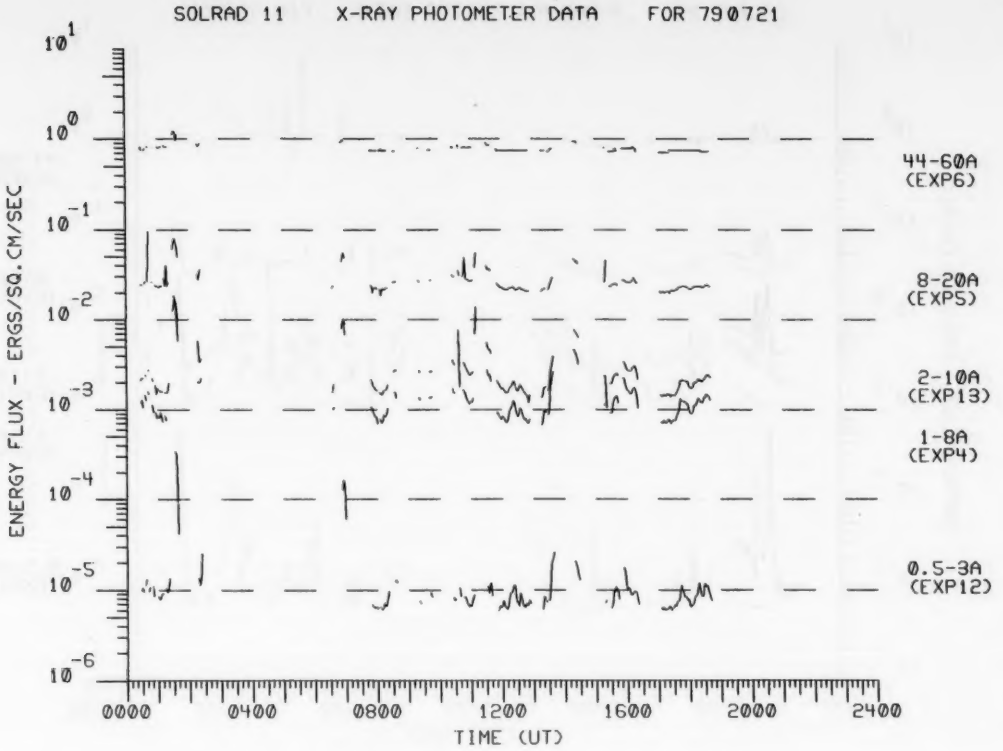

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790716
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

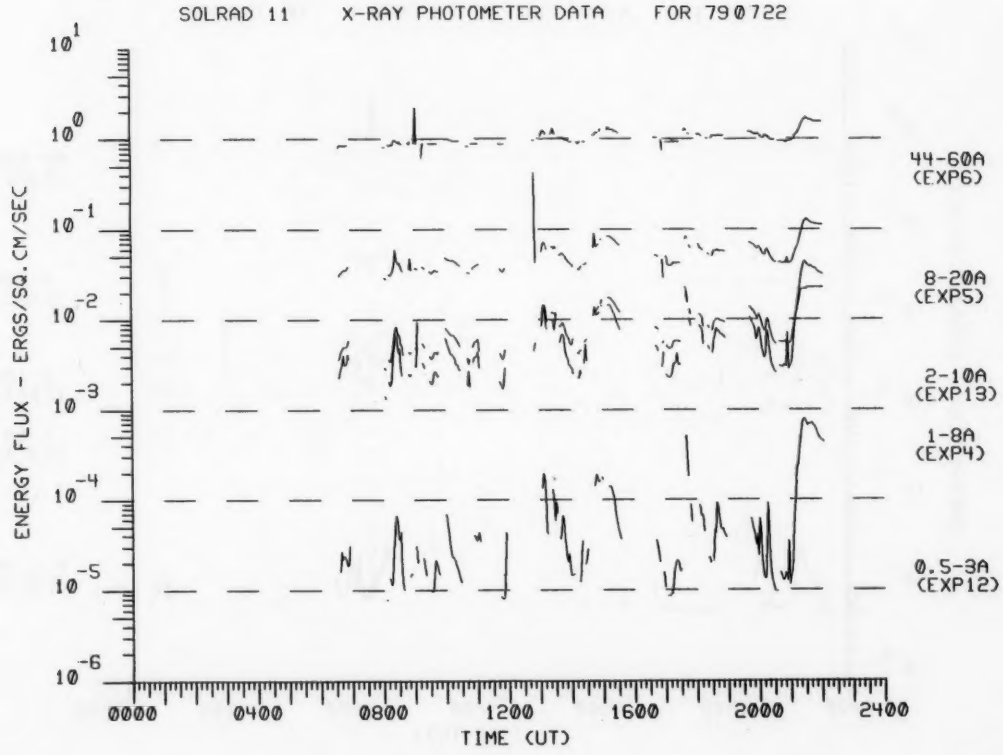

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790717
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

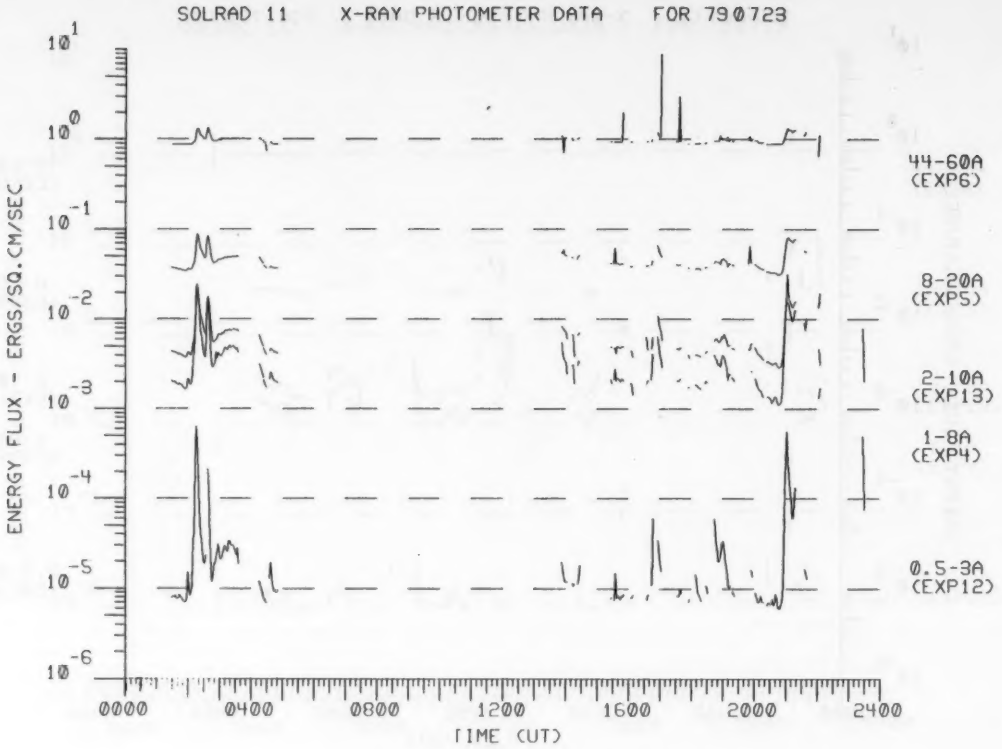

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790718
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

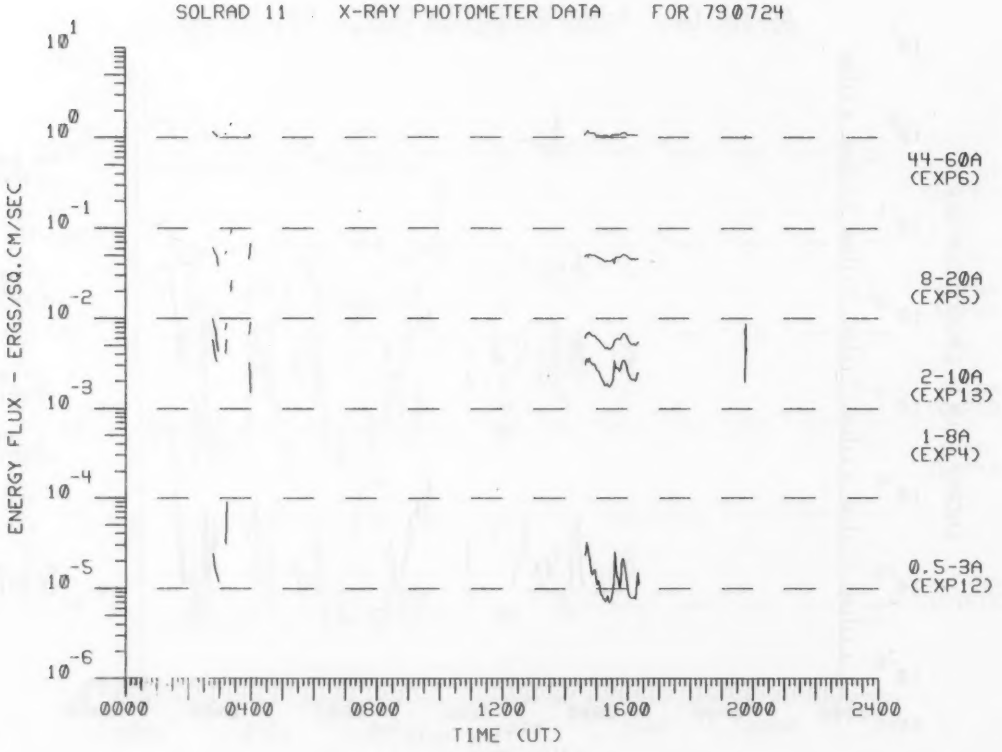

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790719
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790720
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

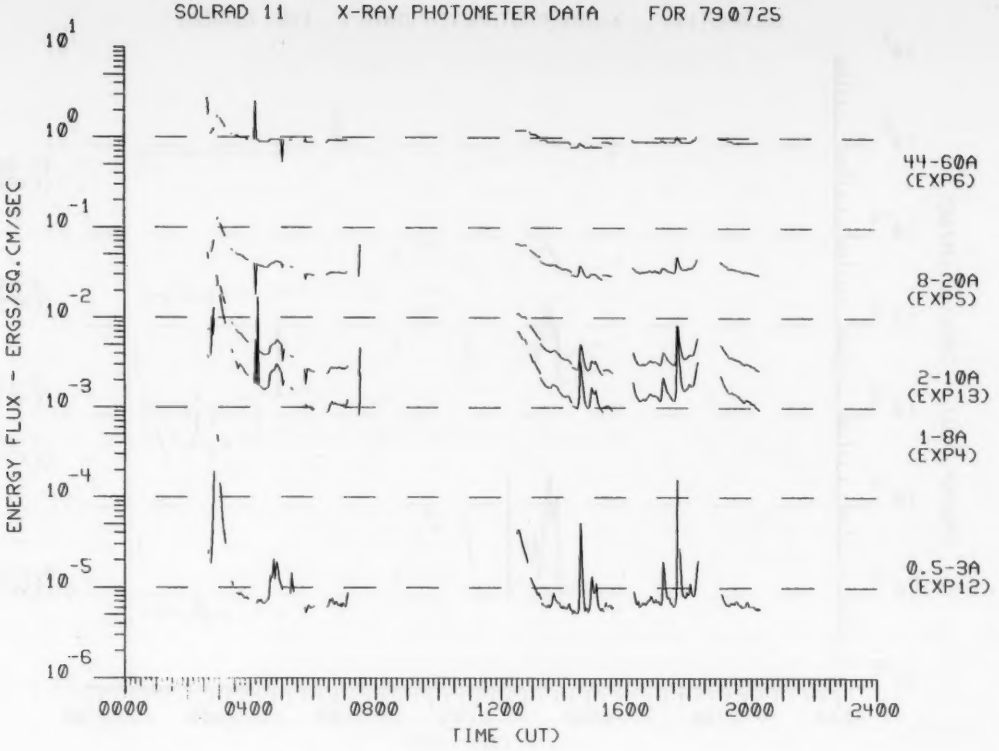

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790721
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790722
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

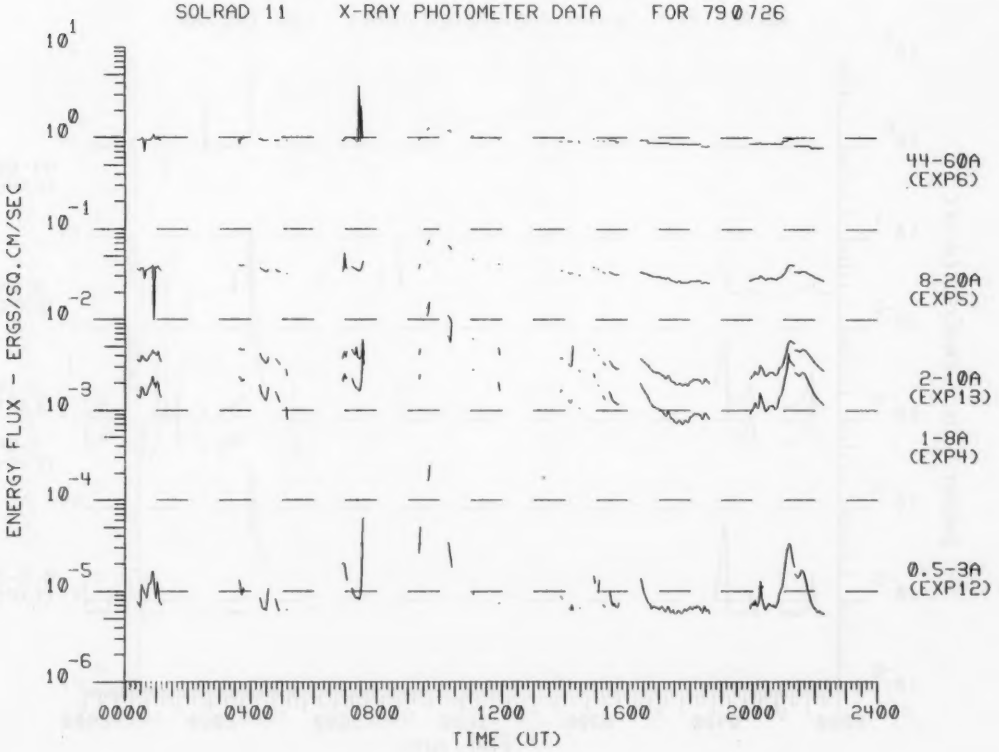

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790723
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

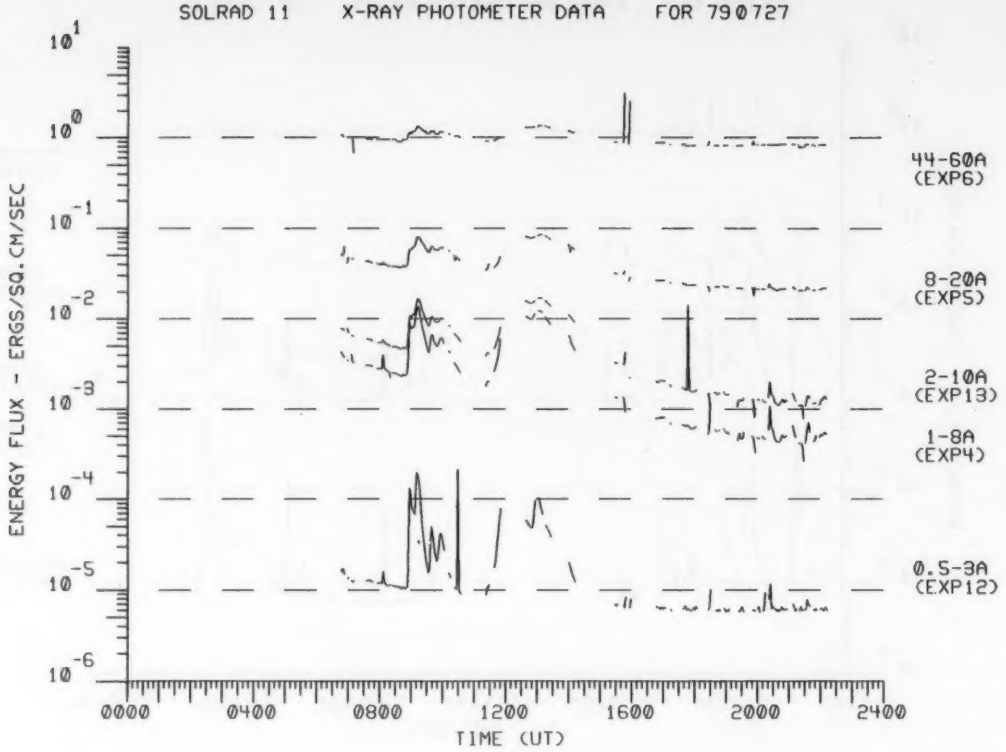

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790724
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

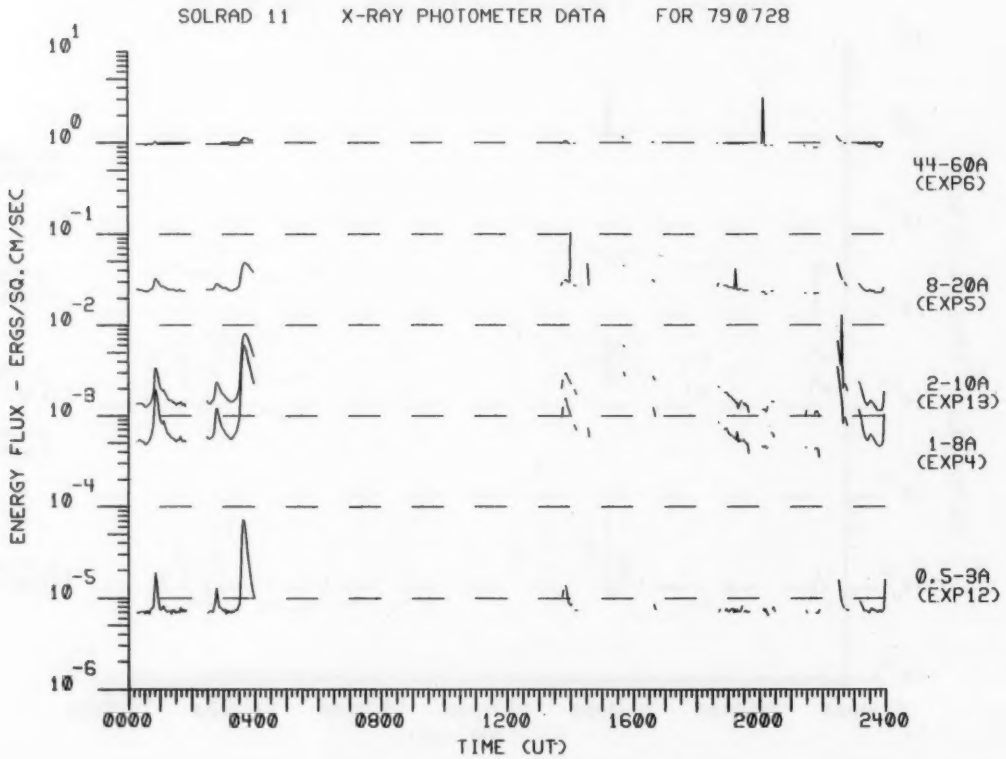
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790725



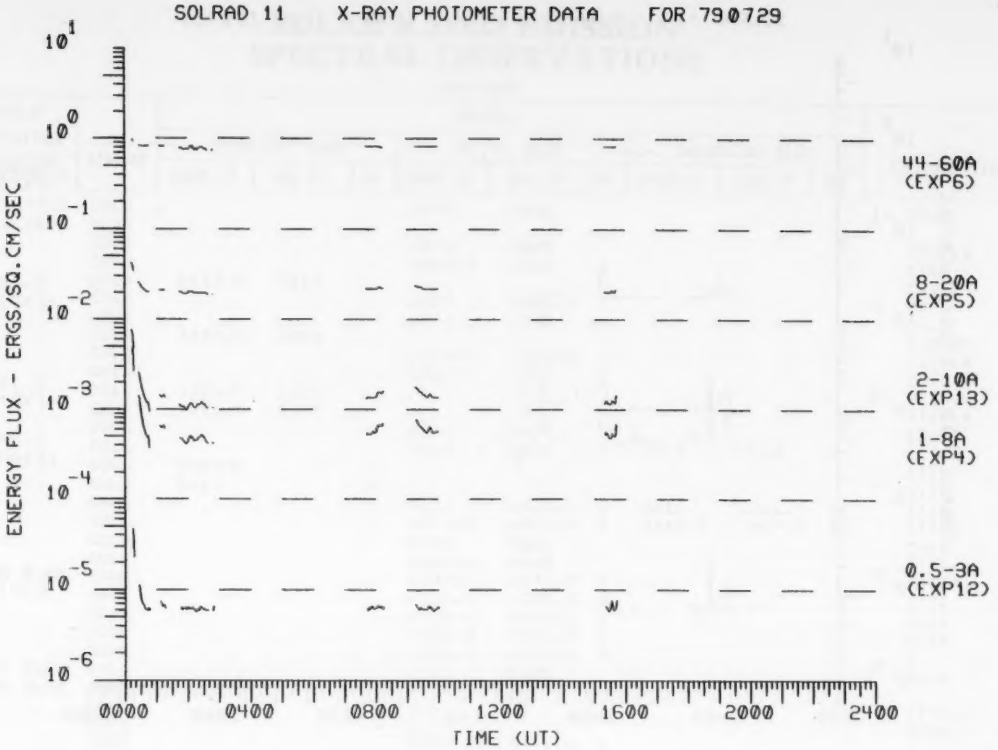
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790726



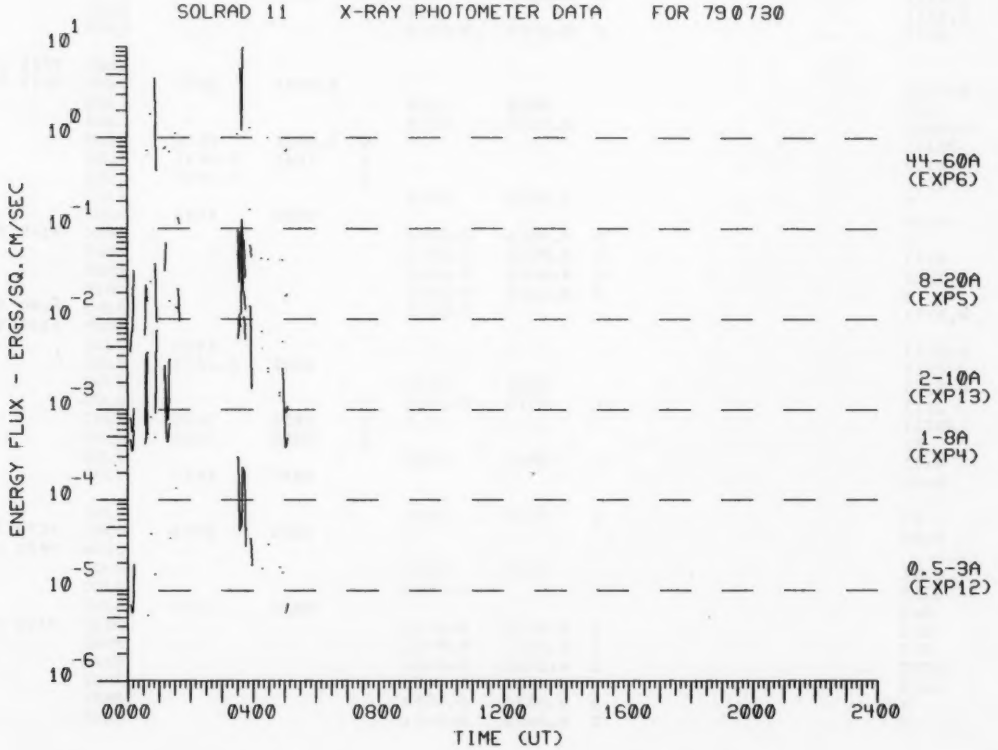

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790727
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

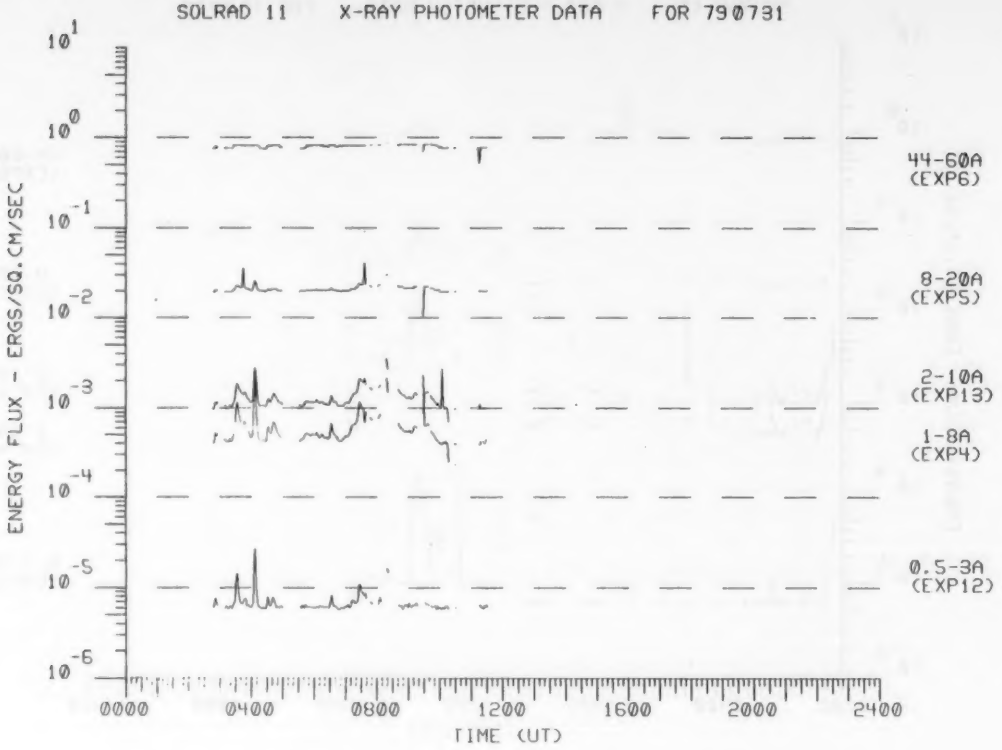

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790728
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790729



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790730




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790731
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A
(EXP6)
8-20A
(EXP5)
2-10A
(EXP13)
1-8A
(EXP4)
0.5-3A
(EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0735	CULG				0000	0241					IN,W
	0000	0955	MANI										
			CULG				0024	0025					IIIG,W
			CULG				0044.5	0046	1				IIIG
			CULG	0118.5	0119								I,W
			CULG				0127	0128.5	1				DC
			CULG				0241	0342					IS,W
			CULG	0308.5	0309								W,DCIM
			CULG				0318.5	0319.5					IIIG,W
			CULG				0322.5	0323	1				IIIG
			CULG	0324.5	0325								IIIG,W
			CULG	0326.5	0327								IIIG,W
			CULG				0342	0455	1				IS,DC
			CULG				0348	0349	2	0348	0349	2	IIIG
			CULG	0402.5		1							IIIB
			CULG	0403		2							IIIB
			CULG				0411	0411.5	2	0411	0411.5	2	IIIB
			CULG				0415.5	0417.5	2	0415.5	0417.5	2	IIIGG
			CULG				0455	0621					IN,W
			CULG				0507.5	0508					IIIG,W
	0913	2420	SGMR				1235.0	1237.3	1				IIIG
			SGMR				1308.9	1309.5	2				IIIG
			SGMR				1425.6	1430.2	2				IIIG
			SGMR				1504.9	1514.9	2				IIIG
			SGMR				1512.0	1513.0	3				V
	2035	2400	CULG				2120	2400					IN,W
	2134	2400	MANI										
			CULG				2156						IIIB,W
			CULG				2157						IIIB,W
			SGMR				2307.8	2308.8	2				V
			CULG	2307	2308	2	2307	2308.5	3				IIIG,V
			CULG				2309						IIIB,W
			CULG				2318.5	2319.5	2				IIIG
02	0000	0955	MANI										
	0000	0736	CULG	0026	0026.5								IIIG,W
			CULG				0038	0039					I,W
			CULG				0143	0143.5					IIIG,W
			CULG	0338	0339.5	2							IIIGG
			CULG	0446.5	0447	1							DCIM
			CULG	0502.5		1							IIIB
			CULG				0536	0536.5	1				I
			CULG	0538	0658								IN,W
	0915	2419	SGMR				1338.2	1338.7	2				V
			SGMR				1408.8	1409.8	2				IIIG
			SGMR				1448.0	1536.8	1				CONT
			SGMR				1930.8	1931.3	2				V
	2035	2400	CULG				2115.5						IIIB,W
	2142	2400	MANI										
			CULG	2153									IIIB,W
			CULG	2155.5	2156								IIIG,W
			CULG				2155	2204					IIIS,W
			CULG				2156.5	2157	1				IIIG
			CULG	2200	2201	1							IIIGG
			CULG	2227	2303	1							IS
			CULG				2328	2400					IS,W
			CULG	2333	2400								IN,W
03			CULG				0000	0125	1				IS
	0000	0736	CULG	0000	0016								IN,W
	0000	0955	MANI										
			CULG				0125	0237					IS,W
			CULG				0645.5		2				IIIB
			CULG	0702	0706								I,W
	0915	2419	SGMR				1138.0	1138.3	1				III
			SGMR				1325.8	1326.0	1				III
			SGMR				1648.2	1651.4	1				IIIG
			SGMR				1907.2	1908.2	2				IIIG
			SGMR				1937.4	1938.1	2				V
			SGMR				1946.6	1946.8	2				V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03			SGMR				1946.9	2058.2	1				IIIG
	2036	2400	CULG				2121.5	2122					IIIG,W
			CULG				2131	2131.5					IIIG,W
	2134	2400	MANI										
			CULG				2136.5	2137					IIIG,W,U
			CULG				2142	2159					IIIN,W
			CULG	2143.5	2144	2	2143.5	2144	3				IIIG,V
			SGMR				2143.7	2144.0	2				V
			SGMR				2149.8	2154.5	2				IIIG
			CULG				2149	2152	2				IIIGG
			CULG				2153	2154.5	2				IIIGG
			CULG				2155		2				IIIB
			CULG				2158.5	2159	1				IIIG
			CULG				2245	2341	1				IS
			CULG	2250.5	2251	1							IIIG
			CULG				2341	2400					IS,W
			CULG	2351	2400								IN,W
04	0000	0736	CULG	0000	0152		0000	0048					IN,W
	0000	1002	MANI										
			CULG	0203	0350	1						IV	P
			CULG	0215	0515	1	0215	0705	1				IS
			CULG				0218.5	0258	2	0249.5	0258	1 II	
			CULG				0225	0250	1			IV	
			CULG				0250	0520	2			IV	
			CULG				0520	0736	1			IV	
			CULG				0520	0700	1				SCINT
	0916	2418	SGMR				0916.0E	1528.0	2				CONT
			SGMR				1603.8E	1605.0	1				IIIG
			SGMR				1605.0E	1605.2	1				V
			SGMR				1619.7E	1619.8	1				III
			SGMR				1635.2E	1636.8	2				IIIG
			SGMR				1719.9E	1720.1	1				V
			SGMR				1723.8E	1729.1	1				IIIG
			SGMR				1741.9E	1744.5	1				IIIG
			SGMR				1920.8E	1930.0	1			II	
			SGMR				1926.0E	2141.0	3				CONT
			CULG				2107	2400					IIIN,W
	2036	2400	CULG				2107	2150	1				IS
	2139	2400	MANI										
			CULG				2150	2400					IS,W
			CULG	2150	2156	1							I
			CULG				2204.5		1				IIIB
			CULG	2304		1	2304		1				IIIB
			CULG	2317	2317.5	1	2317	2318	1				IIIG
			CULG	2321	2321.5	2							IIIG
			CULG				2339		1				IIIB
05	0000	0955	MANI										
	0000	0730	CULG				0016	0229					IIIN,W
			CULG				0029	0149					IS,W
			CULG				0049	0050	1				IIIG
			CULG	0049	0124	1							IS
			CULG				0137	0144				IV	W
			CULG	0143	0203	2						IV	P
			CULG				0149	0212	1				IS
			CULG	0203	0222	1						IV	P
			CULG	0212	0730								IN,W
			CULG	0222	0550							IV	W
			CULG				0229	0322					IIIS,W
			CULG				0237.5		1				IIIB
			CULG	0259	0300.5	1	0259	0300	2				IIIGG
			CULG				0301	0302.5	1				IIIGG
			CULG				0304.5	0306.5	1				IIIGG
			CULG				0322	0730					IIIN,W
			CULG	0424	0425	1	0424.5	0425.5	2	0425	0425.5	1	IIIG
			CULG				0442.5		1				IIIB
			CULG	0651	0655	1	0651	0655	2				IIIGG,U
	2132	2400	MANI										
	2036	2400	CULG				2139	2140.5	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
05			CULG				2141.5						IIIB,W
			CULG				2152.5	2153					IIIG,W
			CULG	2158			2158						IIIB,W
			CULG	2202.5	2203		2202.5	2203					IIIG,W
			CULG	2206	2234	1	2204	2225	1				IS
			CULG	2216	2227	1	2209	2224.5	2				IIIS
			CULG	2224.5	2226	2	2224.5	2226.5	3				IIIG
	0916	2418	SGMR				2224.8E	2225.3	2				V
			CULG				2225	2400	2				IS,C,DC
			CULG				2225	2226.5	2				POSSII
			CULG	2232.5	2233	2	2232.5	2233.5	3				IIIG,V
			CULG	2234.5	2235	2	2234.5	2235	1				IIIG
			CULG				2302.5	2303					IIIG,W
			CULG							2305	2400		SWF,W
06	0000	0736	CULG				0000	0403	1				IS,C,DC
	0000	0959	MANI										
			CULG				0101	0107	1				SCINT
			CULG				0403	0736					IS,W
			CULG				0502	0657					IIIN,W
			SGMR				1247.8E	1247.8	1				III
			SGMR				1457.2E	1501.3	1				IIIG
			SGMR				1832.6E	1833.9	3				V
			SGMR				1834.2E	1849.4	2				IIIG
	2037	2400	CULG	2107	2338								IN,W
			CULG				2108	2340					IS,W
			CULG				2118	2340					IIIN,W
	2130	2400	MANI										
	0917	2418	SGMR				2232.8E	2233.8	2				V
			CULG	2338	2400								IS,W
07	0000	0736	CULG				0000	0340					IN,W
	0000	1000	MANI										
			CULG	0110	0202								IS,W
			CULG	0300	0706								IN,W
			CULG				0340	0441					IS,W
			CULG				0429.5	0430					IIIG,W
			CULG				0433	0434					IIIG,W
			CULG				0440.5	0710	1				IS,DC
			CULG				0440.5	0447.5	2	0443	0447	1	IIIGG
			CULG				0446.5	0500	1			II	
			CULG				0451	0452					IIIG,W
			CULG				0506	0710	1			IV	
			CULG				0604	0705	1				SCINT
	0918	2418	SGMR				1024.0E	1304.6	2				CONT
	2037	2400	CULG	2106	2125		2111	2153					IS,W
			CULG				2121	2235					IIIN,W
	2137	2400	MANI										
			CULG				2153	2200	1				IS
			CULG				2200	2313					IS,W
			CULG	2232.5	2233.5	1	2232.5	2234	2				IIIG
			CULG				2235	2400					IIIS,W
			CULG				2313	2400	1				IS
08	0000	0737	CULG				0000	0113					IIIN,W
			CULG	0000	0204								IN,W
			CULG				0000	0200	1				IS
	0000	1002	MANI										
			CULG				0104	0152	1				IIIS
			CULG				0124.5	0125	2				IIIG
			CULG							0127	0134		IIIS,W
			CULG				0152	0627					IIIN,W
			CULG				0200	0240					IS,W
			CULG				0240	0632					IN,W
			CULG	0332	0550								IN,W
	0918	2418	SGMR										
	2139	2400	MANI										
	2232	2400	CULG				2259	2340	1				IS,DC
			CULG				2340	2400					IS,W
09	0000	0737	CULG				0000	0104					IS,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
09	0000	1000	MANI										
			CULG				0104	0127	1				IS
			CULG				0127	0330					IS,W
			CULG				0332	0348					IIIS,W
			CULG				0341.5	0344	3	0342.5	0344	1	IIIG,V
			CULG				0345.5	0347	2				IIIG
			CULG				0355.5		1				IIIB
			CULG				0358.5	0402	1				UNCLF,
			CULG				0522.5						IIIB,W
	0918	2417	SGMR				1532.2	1533.3	1				III
			SGMR				1643.7	1645.0	1				IIIG
	2139	2400	MANI										
	2037	2400	CULG				2155	2232					IIIN,W
			CULG	2235	2236								I,W
			CULG	2327	2327.5	1							I
			CULG	2334.5	2336								I,W
10	0000	1000	MANI										
	0000	0733	CULG	0103.5			0103.5						IIIB,W
			CULG	0125.5	0126	1							DCIM
			CULG				0146	0146.5					UNCLF,W
			CULG				0343	0343.5					IIIG,W
			CULG				0345.5	0346					IIIG,W
			CULG				0613.5	0614.5	1				IIIG
			CULG				0621	0638.5					IIIN,W
	0920	2417	SGMR										
	2038	2400	CULG				2101.5	2158					IIIN,W
			CULG	2108.5	2109.5								I,W
	2139	2400	MANI										
			CULG				2313.5	2314.5					IIIG,W
			CULG				2349.5	2400					IN,W
11	0000	1000	MANI										
	0000	0737	CULG				0344						IIIB,W
			CULG	0414.5	0416	1							I
			CULG	0419.5	0421.5								I,W
			CULG	0543	0654								IN,W
	0921	2416	SGMR				1516.2	1516.5	2				V
			SGMR				1642.7	1643.0	2				IIIG
	2037	2400	CULG				2115	2400					IN,W
	2140	2400	MANI										
12	0000	1000	MANI										
	0000	0737	CULG				0001.5	0004					I,W
			CULG				0029.5						IIIB,W
			CULG				0339	0349					IIIN,W
			CULG				0341.5	0342	2	0341.5	0342	1	IIIG
			CULG				0352		1	0352		1	IIIB
			CULG				0415.5	0418		0415.5	0418		IIIG,W
			CULG				0416		1				IIIB
			CULG				0445	0446	1				IIIG
	0921	2416	SGMR				1217.9	1219.8	2				V
	2037	2400	CULG				2106	2329.5					IIIN,W
	2134	2400	MANI										
			CULG				2158.5	2159.5	3				IIIB,V
			SGMR				2158.9	2159.6	2				V
			CULG				2250	2250.5	2				IIIB
13	0000	1001	MANI										
	0000	0737	CULG				0146.5	0156	1			II	
			CULG				0335	0335.5					UNCLF,W
			CULG	0458.5	0459								I,W
	0922	2415	SGMR										
	2038	2400	CULG										
	2144	2400	MANI										
14	0000	1000	MANI										
	0000	0738	CULG										
	0923	2415	SGMR										
	2141	2400	MANI										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
14			CULG				2354.5	2359					IIIGG,W
	2038	2400	CULG				2354.5	2356	1				UNCLF.
			CULG				2356.5		1				IIIB
			CULG				2357.5	2358	1	2357.5	2358	1	IIIG
15	0000	0737	CULG										
	0000	1001	MANI										
	0924	2414	SGMR				1407.1	1407.4	2				V
			SGMR				1407.4	1412.0	3				IIIG
			SGMR				1428.5	1428.7	1				V
			SGMR				1451.7	1452.3	2				V
			SGMR				1520.4	1520.7	2				V
			SGMR				1730.8	1733.3	2				IIIG
			SGMR				1858.7	1858.8	3				V
			SGMR				1902.6	1902.7	2				V
			SGMR				2024.2	2024.7	2				IIIG
	2041	2205	CULG				2109	2110					IIIG,W
			CULG	2111			2111						IIIB,W
	2159	2400	MANI										
			CULG	2201.5	2202	2	2201	2202	2				IIIG
	2210	2400	CULG	2230.5	2231.5	2	2231	2232	1				IIIG
			CULG	2309									IIIG,W
16	0000	1003	MANI										
	0000	0738	CULG				0004	0004.5	2				IIIG
			CULG				0039	0040.5					UNCLF,W
			CULG	0146.5			0146.5						IIIB,W
			CULG	0147	0148								I,W
			CULG				0411						IIIB,W
	0924	2414	SGMR				1844.7	1844.8	2				III
			SGMR				2043.0	2044.2	2				III
	2038	2400	CULG	2137	2138	1	2137	2138	2				IIIG
			CULG	2138.5	2139	1							IIIG
			CULG	2140	2142		2140	2141					IIIG,W
	2142	2400	MANI										
17	0000	1000	MANI										
	0000	0738	CULG				0034.5						IIIB,W
			CULG	0135.5	0136	1							IIIG
			CULG	0219	0219.5	1	0219	0219.5	1				IIIG
			CULG	0221	0221.5	1							IIIG
			CULG				0221	0221.5					IIIG,W
			CULG				0408	0551					IIIN,W
			CULG				0510.5		1				IIIB
			CULG				0551	0656					IIIS,W
			CULG				0552	0708					IS,W
			CULG				0603	0632	1				IIIN
	0926	2413	SGMR										
	2038	2400	CULG										
	2140	2400	MANI										
18	0000	1000	MANI										
	0000	0738	CULG				0136	0206					IIIS,W
			CULG				0136	0206	1				N,RS,OP
			CULG				0208	0208.5	1				IIIG
			CULG				0241						IIIB,W
			CULG				0313	0313.5					UNCLF,W
			CULG				0329.5						IIIB,W
			CULG				0332						IIIB,W
			CULG				0417						IIIB,W
			CULG				0622.5						IIIB,W
	0926	2412	SGMR										
	2139	2400	MANI										
	2038	2400	CULG				2246						IIIB,W
			CULG	2305.5	2306		2305.5						IIIG,W
19	0000	1000	MANI										
	0000	0738	CULG				0025.5						IIIB,W
			CULG				0034.5	0050.5					IS,W
			CULG	0059.5	0100	2	0059.5	0101	3	0059.5	0101.5	3	IIIG,V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
19			CULG				0126.5	0127					IIIG,W
			CULG				0131.5	0132					IIIG,W
			CULG	0141	0141.5	1	0141	0142	1				IIIG
			CULG	0156	0156.5	1	0156	0156.5	2	0156.5	0157	2	IIIG,V
			CULG	0209.5	0210.5	1							IIIG
			CULG				0209.5	0210.5					IIIG,W
			CULG				0233.5		1				IIIB
			CULG				0233	0234					IIIG,W
			CULG				0245.5	0246	2				IIIG
			CULG	0321.5	0323	2	0321.5	0323.5	2	0323	0323.5	1	IIIGG
			CULG	0352.5	0353.5	3	0352.5	0354	3				IIIG,V
			CULG				0445	0524	1				IS
			CULG	0556.5			0556.5						IIIB,W
	0927	2411	SGMR				1059.5	1056.7	2				V
			SGMR				1402.8	1403.1	1				III
			SGMR				1440.0	1440.4	1				III
			SGMR				1547.9	1704.0	2				IIIS
			SGMR				1808.0	1810.2	1				IIIG
	2038	2400	CULG				2102	2343					IIIN,W
			CULG	2104	2109	1							I
			CULG				2109	2332					IS,W
			CULG				2118	2118.5	1				IIIB
	2133	2400	MANI										
			CULG				2206.5	2207.5					IIIG,W
			CULG	2206.5	2207.5	1							IIIG
			CULG				2216	2220	1				I
			CULG	2244	2245	1	2244	2245	1				IIIG
			CULG	2248.5	2253	2	2248	2253	2				IIIGG,V
			CULG				2250.5		3				IIIB
			CULG				2256.5	2258	1				I
			CULG	2341	2342	2	2341	2342	1				IIIG,U
20	0000	1000	MANI										
	0000	0454	CULG	0145	0148.5	2	0145	0148.5	2				IIIGG,V
			CULG	0159.5	0204		0159	0204					IIIGG,W
			CULG				0202		2				IIIB
			CULG				0203	0204	2				IIIG
			CULG				0328						IIIB,W
			CULG				0331.5	0339.5					IIIS,W
			CULG				0333.5	0336	2	0333.5	0336	1	IIIG
			CULG	0347.5	0348	2							IIIG
			CULG				0347.5	0348					IIIG,W
			CULG				0353.5						IIIB,W
			CULG	0401	0402.5	3	0401.5	0404	3	0401.5	0404	2	IIIG,V
			CULG				0441.5		1				IIIB
	0727	0738	CULG										
	0927	1503	SGMR										
	2038	2400	CULG										
	2154	2400	MANI										
21	0000	0955	MANI										
	0000	0738	CULG				0035	0036					IIIG,W
			CULG				0037	0038	1				UNCLF.
			CULG				0040.5	0042					IIIG,W
			CULG				0147	0215					IIIS,W
			CULG				0152	0233	1				IS
			CULG	0430.5	0431.5	2	0430.5	0431.5	2				IIIG,V
			CULG				0454	0630					IN,W
			CULG				0513.5						IIIB,W
			CULG				0542.5	0551.5					IIIS,W
	0502	1900	DWIN	1338.0	1338.6	1							IIIG
	2135	2400	MANI										
	2038	2400	CULG				2136	2400					IIIN,W
			CULG				2146	2254					IN,W
			CULG				2150	2150.5	1				I
			CULG				2236		1				IIIB
			CULG				2329	2329.5	1				IIIG
			CULG				2337	2337.5	1				IIIG
			SGMR										
22	0000	0957	MANI										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
22	0000	0738	CULG				0005	0005.5					IIIG,W
			CULG				0015	0016					IIIG,W
			CULG							0117	0117.5		IIIB,W
			CULG				0118			0118	0118.5		IIIB,W
			CULG				0122.5	0123	2	0122.5	0123	1	IIIG
			CULG				0241.5	0242.5	2	0241.5	0242.5	1	IIIG
			CULG				0316		1	0316	0316.5	1	IIIB
			CULG				0318.5	0319					IIIG,W
			CULG				0323.5	0324	1	0323.5	0324	1	IIIG
			CULG				0542.5	0544	3				IIIG
	0502	1400	DWIN	0545.3	0545.5	2							IIIG
			CULG				0545	0545.5	2				IIIG
	2038	2400	CULG				2116.5	2315					IIIN,W
	2130	2400	MANI										
			CULG	2135	2216								IN,W
			CULG				2143	2205					IS,W
			CULG				2205	2322	1				IS,C
			CULG	2207.5		1	2207.5		1				IIIB
			CULG				2241		1				IIIB
			CULG				2243.5		1				IIIB
			CULG				2313		1				IIIB
			CULG				2322	2330	1				IS
			CULG				2330	2400					IS,W
			CULG	2334	2336	3	2334	2337.5	2				II
			SGMR										
23	0000	1006	MANI										
	0000	0055	CULG				0000	0010					IN,W
	0134	0738	CULG				0216	0217	1				IIIG
			CULG	0218	0219.5	2	0218	0221	1				II
			CULG				0233.5	0234.5	2	0233.5	0234.5	1	IIIG
			CULG				0253.5	0254					IIIG,W
			CULG				0255	0255.5	1				IIIG
			CULG				0257.5	0258					IIIG,W
			CULG				0727.5	0728					IIIG,W
	0700	1900	DWIN	1647	1652	2							IV
	2038	2400	CULG				2127	2128					IIIG,W
	2140	2400	MANI										
			CULG	2323	2356		2134	2400					IN,W
			SGMR										
24	0000	1000	MANI										
	0000	0738	CULG				0037	0039					IIIG,W
			CULG				0043.5						IIIB,W
			CULG				0045	0047	1				IIIGG
			CULG				0050.5						IIIB,W
			CULG				0051						IIIB,W
	0502	1904	DWIN										
			CULG				0536		1				RS
			CULG				0536		1				IIIB
	2038	2400	CULG				2128.5	2225					IIIN,W
	2130	2400	MANI										
			CULG				2131.5	2132	1				IIIG
			CULG				2140.5		1				IIIB
			CULG				2211	2224					IS,W
			CULG				2222		1				IIIB
			CULG	2347	2347.5								I,W
			SGMR										
25	0000	1000	MANI										
	0000	0725	CULG				0012	0256					IN,W
			CULG				0332	0332.5	1				IIIG
			CULG	0350.5			0351						IIIB,W
			CULG	0414.5	0415	1	0413.5	0415.5	1				IIIG
	0502	1645	DWIN										
			CULG				0604	0648					IN,W
			CULG				0632.5	0633					IIIG,W
			CULG				0640	0642					IIIG,W
			CULG				0703.5	0705.5					IIIG,W
	2039	2400	CULG				2132	2132.5					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
25			CULG				2213	2213.5	1				IIIG
	2242	2400	MANI										
			CULG				2254						IIIB,W
			CULG				2349.5	2350					IIIG,W
			CULG				2356	2359.5					IIIGG,W
			SGMR										
26	0000	1000	MANI										
	0000	0738	CULG				0016						IIIB,W
			CULG				0025.5	0026.5	1				IIIG
			CULG				0028	0028.5	1				IIIG
			CULG				0029	0029.5					IIIG,W
			CULG				0037.5			0037.5			IIIB,W
			CULG				0131	0131.5					IIIG,W
			CULG				0154.5						IIIB,W
			CULG				0200.5	0202	2	0201.5		1	IIIG
			CULG				0224	0228.5					IIIGG,W
			CULG				0234	0237					IIIGG,W
			CULG				0323	0324	1				IIIGG
			CULG				0416.5			0416.5			IIIG,W
			CULG				0456.5			0456.5			IIIB,W
			CULG				0544.5	0545					UNCLF.
			CULG				0546						IIIG,W
			CULG				0552						IIIG,W
			CULG				0557	0639					IN,W
			CULG				0639	0706					IS,W
			CULG				0716.5	0718.5					IIIGG,W
	1107	1904	DWIN										
	2039	2400	CULG	2056	2108	1							IS
			CULG				2105	2400					IS,W
	2130	2400	MANI										
			CULG				2133	2400					IIIN,W
			CULG				2257.5	2258	1				RS,DC
			SGMR										
27	0000	1000	MANI										
	0000	0739	CULG				0000	0017					IS,W
			CULG				0139.5	0142.5	1				IIIG
			CULG				0154						IIIB,W
			CULG				0218.5	0220.5	1	0219.5		1	IIIG
			CULG	0238	0342								IN,W
			CULG				0328	0328.5					IIIG,W
	0502	1904	DWIN										
			CULG				0528		1				IIIB
			CULG				0620	0620.5					IIIG,W
			CULG				0644.5	0645.5					IIIG,W
	2039	2400	CULG				2059	2257					IS,W
			CULG				2122	2122.5					IIIG,W
			MANI										
			SGMR										
28	0000	0738	CULG				0020	0020.5					I,W
	0029	1002	MANI										
			CULG				0109	0110	3	0109	0110.5	3	IIIG,V
			CULG				0110	0116.5	1	0110.5	0116.5	1	IIIN
			CULG				0348	0640					IN,W
			CULG				0513.5	0514	1				IIIG
	0502	1904	DWIN	1710.0	1711.2	1							IIIG
	2143	2400	MANI										
	2038	2400	CULG				2358	2358.5					IIIG,W
			CULG	2359	2359.5	2	2359	2400	1				IIIG,V
			SGMR										
29	0000	1000	MANI										
	0000	0738	CULG				0006	0010.5				II,	W
			CULG				0007						IIIB,W
			CULG				0009		1				IIIB
			CULG				0024			0024			IIIB,W
			CULG				0053	0053.5					IIIG,W
			CULG				0151	0151.5	2	0151	0151.5	2	IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
29			CULG	0324.5	0327.5								DCIM
			CULG				0329.5	0330	1				IIIG
			CULG				0330.5	0402	1				II
			CULG							0331	0349		SWF
			CULG				0342	0410					IV, W
			CULG				0522	0524.5					IIIG,W
			CULG				0612	0613					IIIG,W
	2038	2400	CULG										
	2129	2326	MANI										
			SGMR										
30	0000	0726	CULG				0231	0237	1	0233	0241	1	IIIS
			CULG							0234	0425		SWF
			CULG				0237	0251	2				II
			CULG				0243	0313					IV
			CULG				0249.5	0255					P
			CULG				0316	0339	1				IS
	0334	1000	MANI										
	1100	1904	DWIN										
	2038	2400	CULG				2132.5						IIIB,W
	2146	2353	MANI										
			CULG				2233	2255.5					IIIN,W
			SGMR										
31	0000	0738	CULG	0134			0134						IIIB,W
	0240	1000	MANI										
	0502	1904	DWIN										
			CULG				0647.5	0648.5		0648	0648.5		IIIG,W
	2038	2400	CULG				2117	2219					IIIS,W
	2134	2400	MANI										
			CULG	2219.5	2220	1	2219	2220	2				IIIG
			CULG				2220	2312					IIIN,W
			CULG	2347	2400								IN,W
			SGMR										

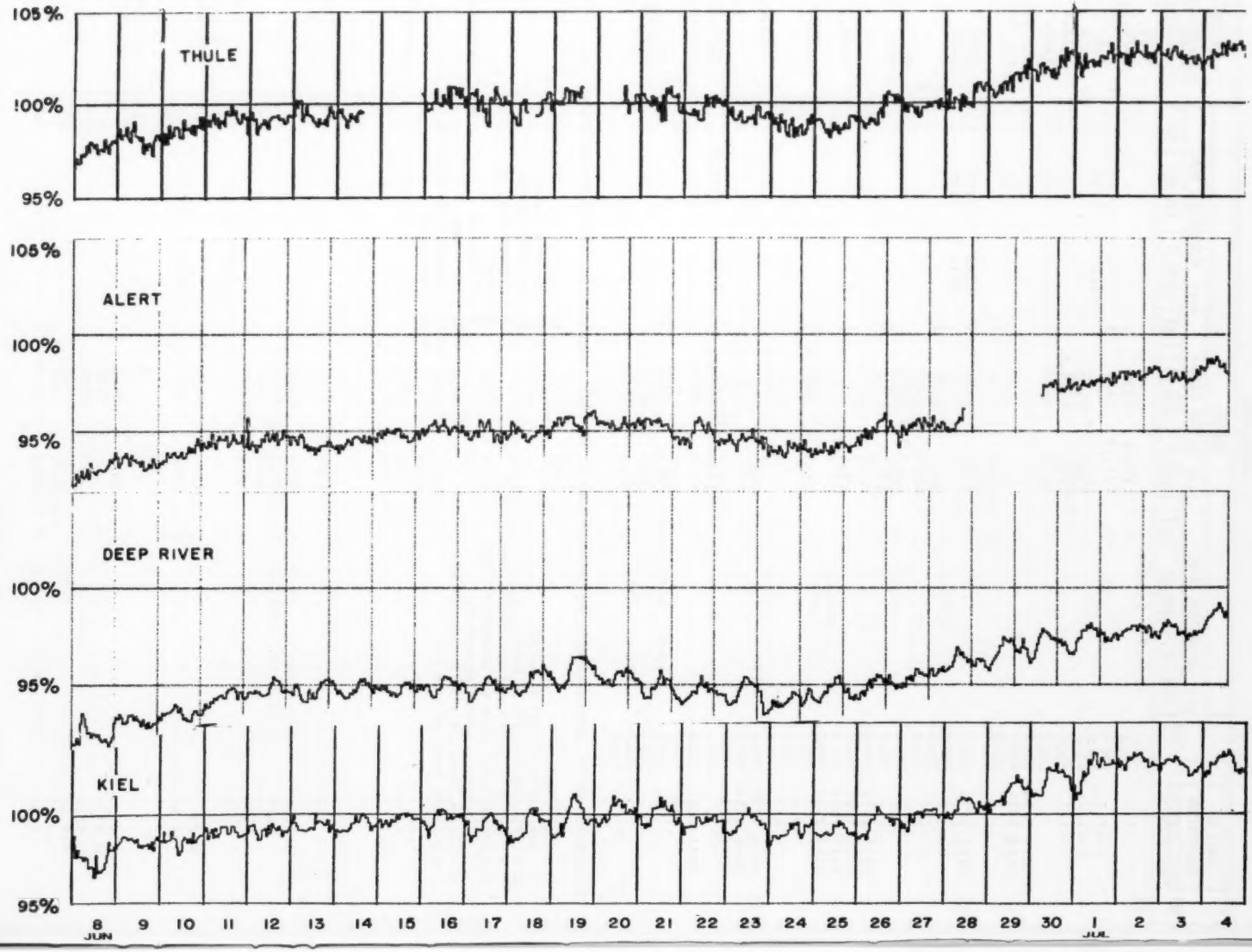
The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1994 (June-July 1979)

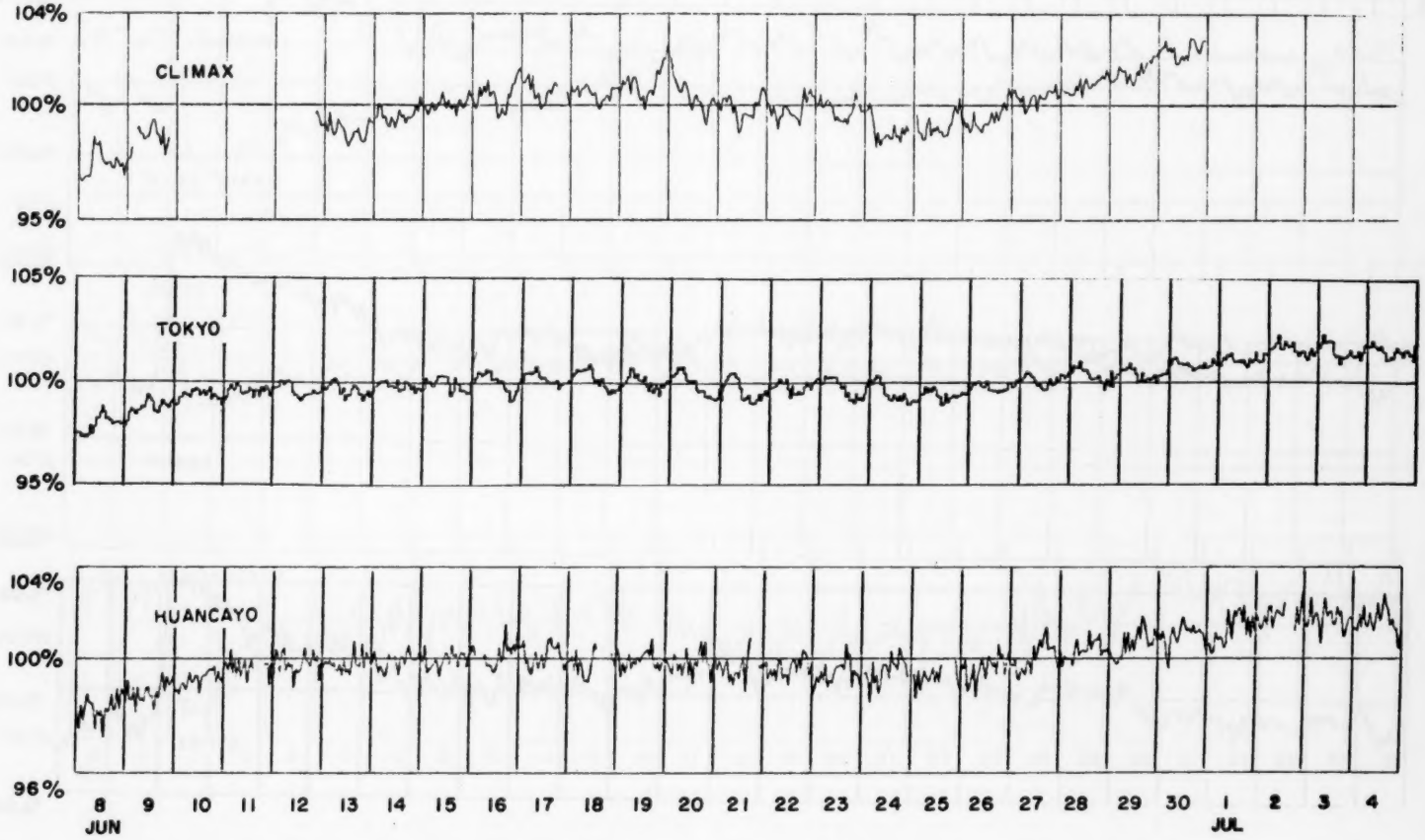


95%

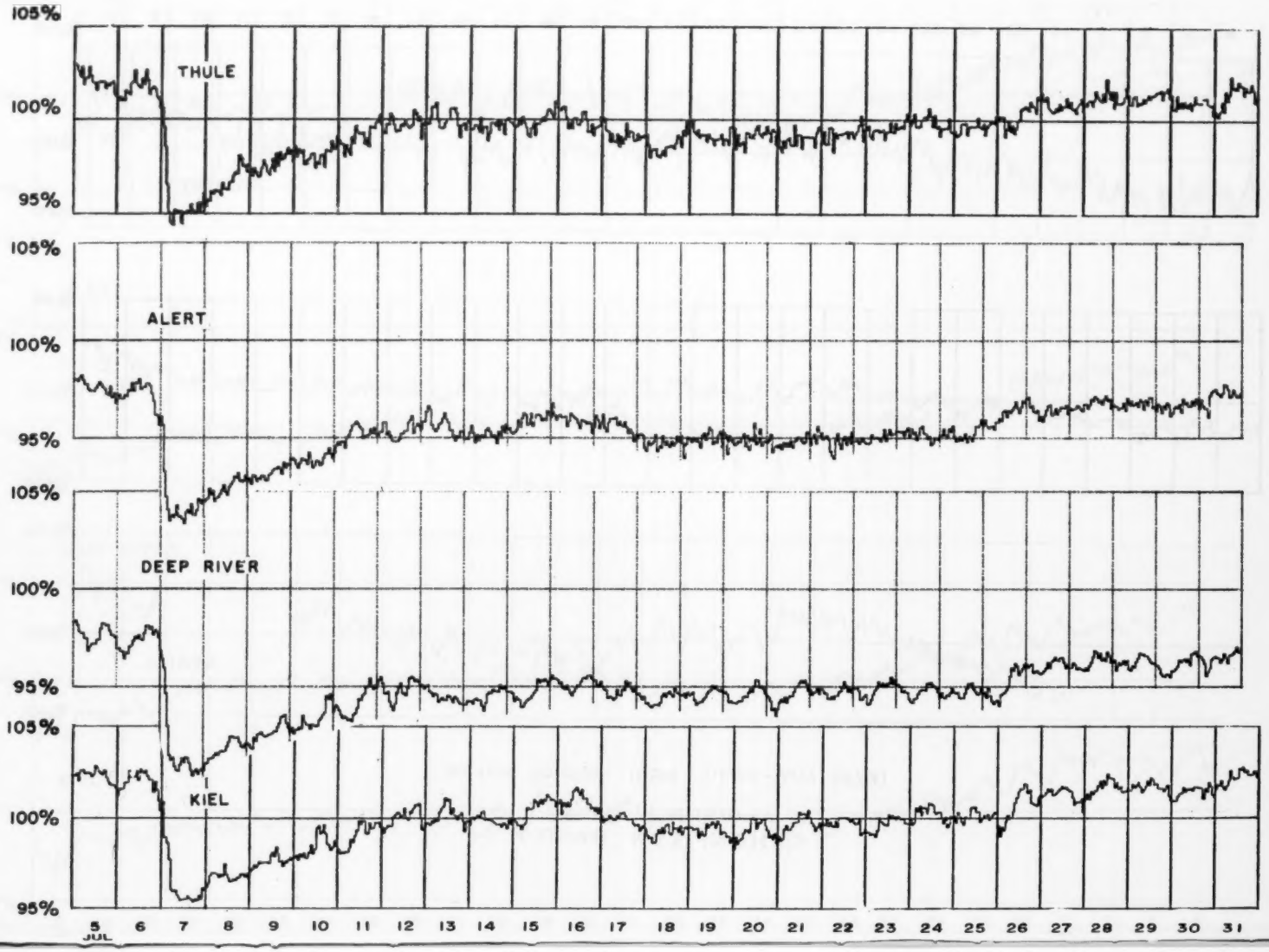
8 JUN 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 JUL 2 3 4

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1994 (June-July 1979)



COSMIC RAY INDICES
(Neutron Monitors)
Bartels Rotation 1995 (July 1979)

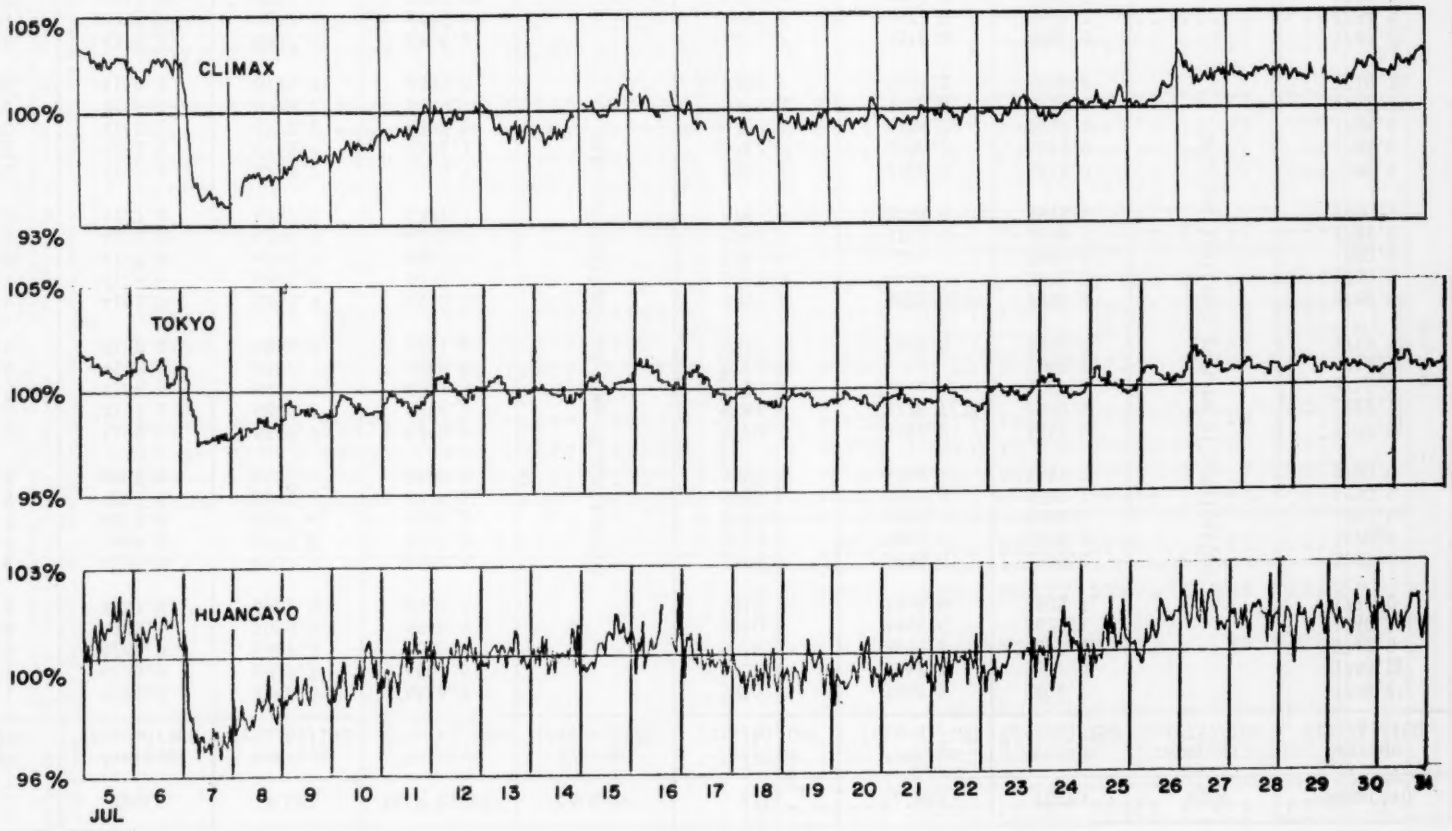


95%

5 JUL 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1995 (July 1979)



COSMIC RAY INDICES

(Neutron Monitors)

July 1979	THULE	ALERT	DEEP RIVER	CALGARY	KIEL	CLIMAX	TOKYO	KULA	HUANCAYO
	Average (cts/h)/100	Average (cts/h)/100	Average (cts/h)/300	Average (cts/h)/100	Average (cts/h)/100	Average (cts/h)/100	Average (cts/h)/256	Average (cts/h)/100	Average (cts/h)/100
1	4259.5	6945.3	6564.3		5943.4	3918.3	3608.1		1734.4
2	4273.2	6977.7	6584.6		5968.6	3943.7	3627.0		1744.7
3	4266.9	6987.3	6595.4		5955.8	3930.5	3623.5		1742.3
4	4279.6	7006.0	6618.9		5960.5	3946.5	3623.1		1740.5
5	4251.9	6961.5	6585.1		5915.9	3914.9	3605.5		1727.0
6	4230.8	6937.7	6563.8		5894.9	3896.0	3605.6		1727.4
7	3984.6	6542.0	6193.3		5573.3	3649.4	3510.8		1670.6
8	4023.4	6591.4	6185.5		5597.2	3629.3	3503.1		1680.5
9	4065.0	6645.3	6244.5		5646.6	3672.8	3531.1		1690.9
10	4085.8	6695.3	6288.0		5694.6	3704.3	3537.3		1700.0
11	4126.5	6785.9	6342.8		5729.3	3752.2	3547.5		1707.5
12	4153.1	6800.1	6394.3		5784.3	3778.7(36)	3569.3		1711.1
13	4164.5	6821.0	6371.3		5790.3	----	3567.7		1712.7
14	4148.8	6787.7	6366.9		5774.1	----	3558.1		1712.7
15	4160.8	6835.2	6381.4		5812.1	3801.8	3576.7		1717.3
16	4161.0	6842.9	6415.3		5835.7	3803.6(28)	3588.3		1719.9
17	4129.6	6821.9	6393.7		5777.9	----	3570.0		1710.5
18	4107.8	6759.5	6363.5		5741.5	----	3549.0		1700.4
19	4129.0	6769.9	6376.0		5744.3	3761.7	3546.3		1701.6
20	4127.6	6767.5	6377.1		5741.8	3764.8	3543.3		1700.3
21	4123.4	6759.7	6372.4		5763.6	3766.8	3544.0		1702.9
22	4132.5	6766.7	6385.1		5767.5	3780.2	3545.9		1704.0
23	4145.1	6775.2	6392.6		5763.7	3784.0	3557.4		1704.4
24	4156.7	6789.1	6389.7		5795.3	3785.8	3564.1		1712.9
25	4150.3	6791.3	6383.6		5789.7	3804.1	3569.6		1716.7
26	4174.1	6857.5	6406.2		5821.7	3816.4	3587.3		1723.2
27	4197.8	6878.4	6476.1		5857.1	3872.0	3601.2		1734.5
28	4215.1	6901.1	6488.0		5880.1	3869.7	3594.9		1731.9
29	4218.0	6899.7	6489.7		5880.1	3868.1	3597.0		1728.1
30	4201.7	6892.8	6476.8		5865.8	3866.7	3594.0		1731.2
31	4220.9	6927.9	6501.0		5909.9	3890.3	3601.2		1731.7
MEAN	4163.4	6823.2	6418.3		5805.7	3814.4	3572.5		1715.2

Data not available at time of publication.

Data not available at time of publication

GEOMAGNETIC ACTIVITY INDICES

JULY 1979

Day	Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa *					Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M		
1	Q0A	2	2-	3-	2-	1+	2+	2-	1+	15-	2	2	3-	2+	1+	2-	1+	1	7	17	9	13	13	CK	0.4
2	Q3	2-	1-	0+	1-	1	1	1+	1	8-	2-	1-	0	1-	1	0+	1-	1-	4	9	3	5	7	CK	0.1
3		1-	1-	2+	4+	4-	3	3	3	21-	1-	0+	3	4	3	3-	2+	3-	14	30	11	16	25		0.8
4		3	3+	3	2-	1+	1-	1	1+	15+	3-	3+	3+	1+	1+	0+	1	1+	9	20	7	20	7		0.5
5		1-	2-	2+	2+	2+	3	3	2+	18-	1-	1+	2-	2+	2-	3-	2+	2	9	18	10	10	19	K	0.5
6	D3	1	2	3-	4	3-	2+	6	4	25-	1	2+	3-	3+	2+	2	5-	3+	22	42	21	15	47		1.1
7	D1	4	4	3	2+	5+	5+	3+	2+	30-	4-	3	3-	2	4+	4-	3-	2	27	35	30	26	40		1.2
8		2	2+	2+	2	2+	3	2+	2+	19-	2	2+	2-	2	2-	2+	2	2+	9	22	8	13	17		0.5
9	Q9K	1	2-	1+	1	1+	3	1+	1+	12	1	2-	1	1+	2-	3-	1-	1+	6	15	9	9	16	KK	0.3
10	Q7	1	2-	1-	1-	2	1+	2+	2	12-	0+	2-	1-	1	2-	1	2-	2-	6	12	6	6	12	CK	0.2
11	Q4	1	1+	1+	1+	1-	1-	1	1	8+	1	1	2	2	1-	0+	1	1	4	6	4	7	4	CC	0.1
12		1-	1	0+	1	3-	4	4	2+	16	0+	1	1-	1-	2	3+	3+	2-	11	24	12	4	32		0.6
13		3-	3-	2+	2+	4-	5-	3	2-	23	2+	3-	2+	2+	3+	3+	2	1	16	26	17	17	26		0.9
14		2	1+	1	2+	3-	2-	5-	4+	20	2	2-	1	2	2+	1+	4-	4-	14	26	16	9	33		0.8
15		4-	4-	3	3-	3-	3-	3	2+	24-	3+	3	3-	3-	2+	2+	3	3-	15	30	21	31	22		0.8
16		3	2+	3-	1+	2	2+	3	3+	20	3	2+	3-	2	2-	1+	3-	3	11	24	12	15	20		0.6
17		3+	3	2-	3-	3	2+	2+	4+	23-	3-	3	2-	3	3	2	2+	4	14	31	24	22	33		0.8
18		3+	3	3+	3-	3-	2+	3-	4-	24-	3	3-	3	3-	3-	2	2	3+	15	28	16	23	22		0.8
19		4-	3+	2+	1	2+	2-	2-	3	19	4-	3+	2	1	2+	1+	2-	3	11	23	14	20	16		0.6
20	D5*	1	2+	2	4	5-	3	3+	4	24+	1	2+	2	3+	4-	3-	3-	4-	18	31	22	19	33		1.0
21		2+	2+	2-	3-	2	2	3-	3-	18+	2+	3-	2-	3-	2-	2-	2	3-	9	17	15	15	18		0.5
22	Q6	2-	2-	2-	1	1	2-	2+	1	12	2-	2-	2	1+	1-	1+	1+	1-	6	15	4	10	9	CC	0.3
23	Q8	1-	2+	1+	1	1+	1+	2	2	12	1-	3-	2	1	1+	1+	1+	2	6	13	5	8	11	CC	0.3
24	Q5	2+	2-	1	1-	2-	1+	1	2-	11+	2+	2-	1+	1-	1+	1	1-	1+	5	14	5	9	10	CC	0.2
25	Q2	1+	1+	1-	0+	0+	1-	1-	1-	6	2-	1+	1	0+	0	0+	0+	1-	3	8	3	7	4	CC	0.1
26		1-	1	2-	1+	1+	2-	5-	6-	18	0+	1	2	2-	1+	1+	4	5	17	28	21	8	41		0.9
27	D4	5+	4+	2-	3	2+	5-	3	3	27+	5	4	2-	3-	2+	3+	2+	3-	23	39	17	25	32		1.1
28		4+	3	0+	1-	1-	2-	2	3	16-	4-	3-	1-	1-	1	2-	1+	3-	10	21	7	15	12		0.6
29	D2	3-	3-	3+	3	4	4	5	4+	29	3-	3	3+	3	3+	3+	4-	4-	24	50	26	25	50		1.2
30		3	2	2-	3	3-	2+	2	1	18-	3-	2	2-	3-	3-	2	2-	1	9	20	17	21	17		0.5
31	Q1	0+	1+	1-	1-	0+	0+	0+	0+	4+	0	1	0+	0+	0+	0+	0+	0	3	5	4	5	3	CK	0.0
																		Mean	12	22.5	12.8	17.8			0.59

Day	Three-Hourly Indices Kn								Three-Hourly Indices Ks							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1	2	2-	3	3-	2-	2+	2-	1+	2	2	2	2-	1+	1-	1	3+
2	2-	1-	0+	1	2-	1	1+	1+	2-	1-	0	0	0	0	0+	0+
3	1	1-	4-	5-	3+	3	2+	3	0+	0+	3-	3+	2+	2	2	2
4	3-	3+	3+	2-	2-	1-	2-	2	3	3+	3+	1	0+	0+	0+	1-
5	1	2-	2	3-	2	3	3-	2+	1-	1+	2-	2	1	2-	2	2-
6	1	2+	3	4-	3-	2+	5	4-	1+	2	2+	3-	2	2-	4+	3
7	4	3+	3	2+	4+	4	3	3-	3	3-	2	2-	4+	4-	3-	1+
8	2+	2+	2+	2+	2+	3-	3-	3-	2-	2	1+	1+	1+	1+	1+	2
9	1+	2-	1+	1+	2-	3-	1	2-	1-	2-	0+	1+	1+	2+	0+	1
10	1-	2	1	1+	2	2-	2+	2+	0+	2-	0+	0+	1	0+	1	1
11	1+	1+	2+	2+	1-	1-	1+	1+	1-	1-	2-	1+	0+	0	0+	1-
12	1-	1	1-	1	3-	4-	3	2	0+	1-	0+	0+	1+	3-	3+	1+
13	3-	3-	2+	3-	3	4-	2+	1+	2+	3-	2	2	3+	3-	2	1-
14	2	1+	1+	2+	3-	2	4-	4	2	2	1-	1+	2-	1-	3+	4-
15	3+	3	3-	3-	3-	3-	3	3	3+	3	3-	2+	2	2+	3-	2+
16	3-	2+	3-	2+	2	2	3-	3+	3+	2+	3-	2-	1+	0+	2	3-
17	3-	3	2-	3-	3+	3-	3-	4	3-	3	2	3	3-	2-	1+	4
18	3	3	3	3-	3-	2+	2+	3+	3+	2+	3	2+	3-	2-	2	4-
19	3+	3	2+	1+	3-	2	2	3	4	3+	2	1-	2-	1-	1	3
20	1	2+	2+	4-	4-	3-	3	4-	1	2+	2-	3+	3+	3-	3-	4-
21	2+	3	2	3	2	2	2-	2	2+	3-	2-	2+	2-	1+	2+	3
22	2	2-	2	2-	1	2	2-	1	1+	2-	2-	1	0+	0+	1-	0+
23	1-	3-	2	1+	2-	2-	2-	2+	0+	3-	2+	0+	1-	1	1+	1+
24	2+	2-	1	1	2-	1+	1	2-	3-	2	1+	0+	1	1-	0+	1-
25	2-	1+	1+	0+	0+	1	0+	1	1+	1+	1-	0	0	0	0	0+
26	1-	1+	2+	2+	1+	1+	4+	5	0	1-	2-	1+	1+	1	4	5-
27	5-	4	2	3+	3-	4	3-	3	5	4-	1+	2-	2	2+	2	2
28	4-	3-	1-	1+	1+	2	2	3	4-	3-	0+	0+	0+	1	1	2
29	3-	3	4-	3+	4-	4	4	4	2+	3	3	2+	3-	3-	3+	3+
30	3	2+	2-	3	3-	2+	2	1+	2+	2	1+	2+	2+	2-	2-	0+
31	0+	1	0+	1-	0+	0+	1	0	0	1-	0+	0+	0	0	0	0

Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) are prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤ 6 but one Kp≥ 3o or two Kp values ≥ 3-"). An asterisk means "not really disturbed" (Ap<20).

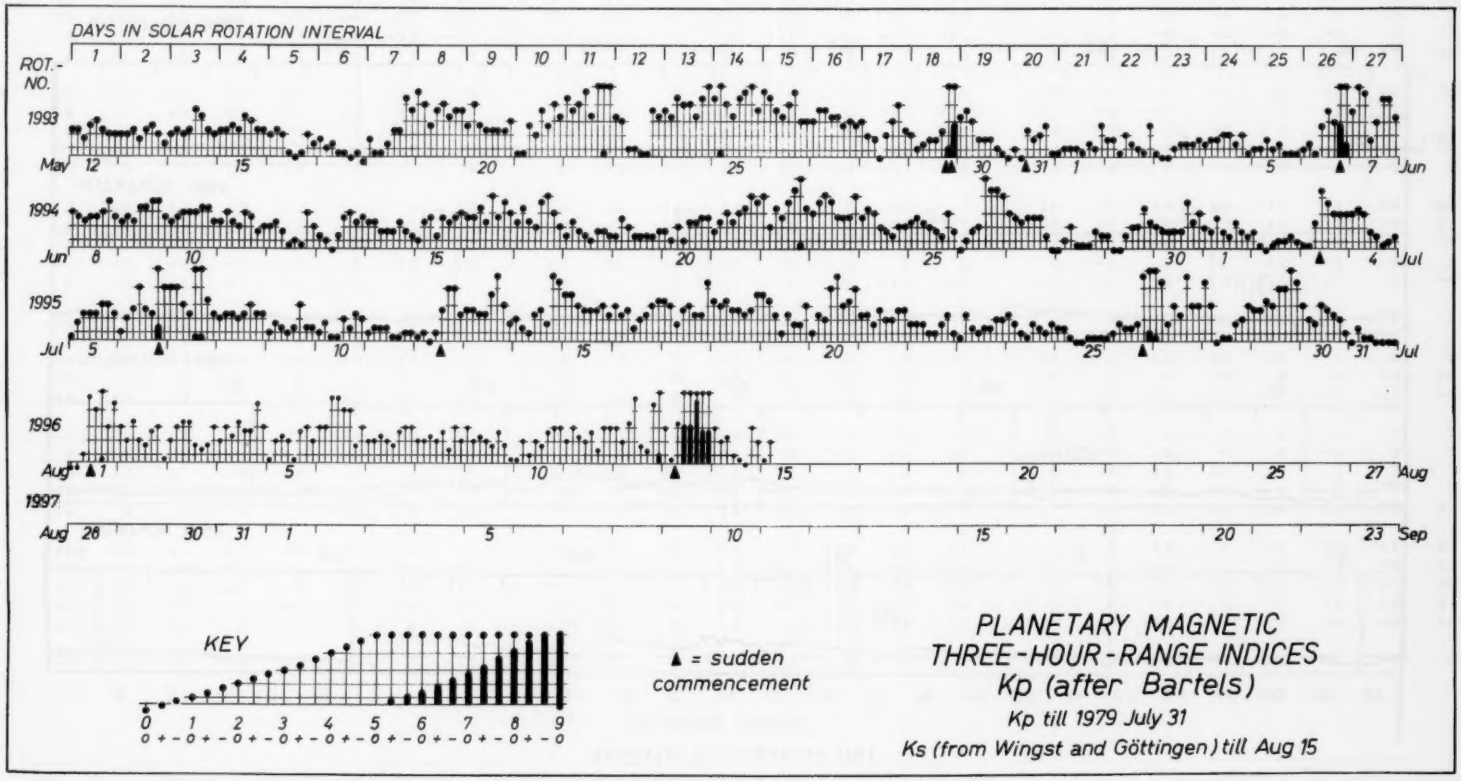
Geomagnetic three-hourly indices Kn, Ks and Km as in *IAGA-Bulletin No. 33* and indices aa ("antipodal") as in *IAGA-Bulletin No. 33* are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 1200 UT.

DAILY AVERAGE INDICES Ap

	1978					1979						
DAY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	4	21	13	13	11	10	6	12	33	18	5	7
2	4	20	12	10	3	19	10	20	36	14	5	4
3	16	11	8	12	5	19	9	13	54	6	4	14
4	30	8	17	5	12	45	19	27	47	7	6	9
5	22	7	8	6	10	23	9	13	52	7	4	9
6	16	14	4	2	5	18	16	30	12	6	34	22
7	7	6	4	9	2	32	6	7	12	11	25	27
8	6	24	5	14	3	8	9	7	12	8	14	9
9	5	31	11	8	3	15	9	15	9	14	15	6
10	6	12	15	16	1	4	6	54	12	7	14	6
11	11	12	5	10	1	4	12	18	6	19	10	4
12	21	13	14	53	4	10	17	6	15	9	7	11
13	13	6	8	22	7	5	3	7	11	8	8	16
14	5	5	5	11	28	8	2	3	15	11	7	14
15	3	3	5	8	28	15	11	8	18	11	10	15
16	4	6	4	6	14	12	7	11	16	5	15	11
17	9	8	5	6	9	7	5	21	11	3	14	14
18	24	3	32	5	48	11	22	7	6	11	6	15
19	11	2	22	13	24	19	15	11	6	24	5	11
20	3	5	9	22	26	12	6	6	2	13	8	18
21	6	9	13	16	12	11	59	4	21	13	15	9
22	5	12	10	28	19	14	33	45	45	36	24	6
23	4	11	6	12	7	27	31	12	23	11	19	6
24	4	10	5	18	6	23	17	15	14	27	10	5
25	9	36	7	60	21	34	14	21	126	34	9	3
26	4	36	18	33	8	28	22	26	12	25	20	17
27	29	51	23	17	14	23	24	18	27	17	10	23
28	124	50	14	5	14	13	17	39	31	11	4	10
29	40	109	16	4	20	13		68	47	30	7	24
30	31	11	25	5	27	16		16	26	10	10	9
31	45		20		18	13		19		6		3
MEAN	17	18	12	15	13	16	15	19	25	14	12	12

19	19	25	14	12	12					

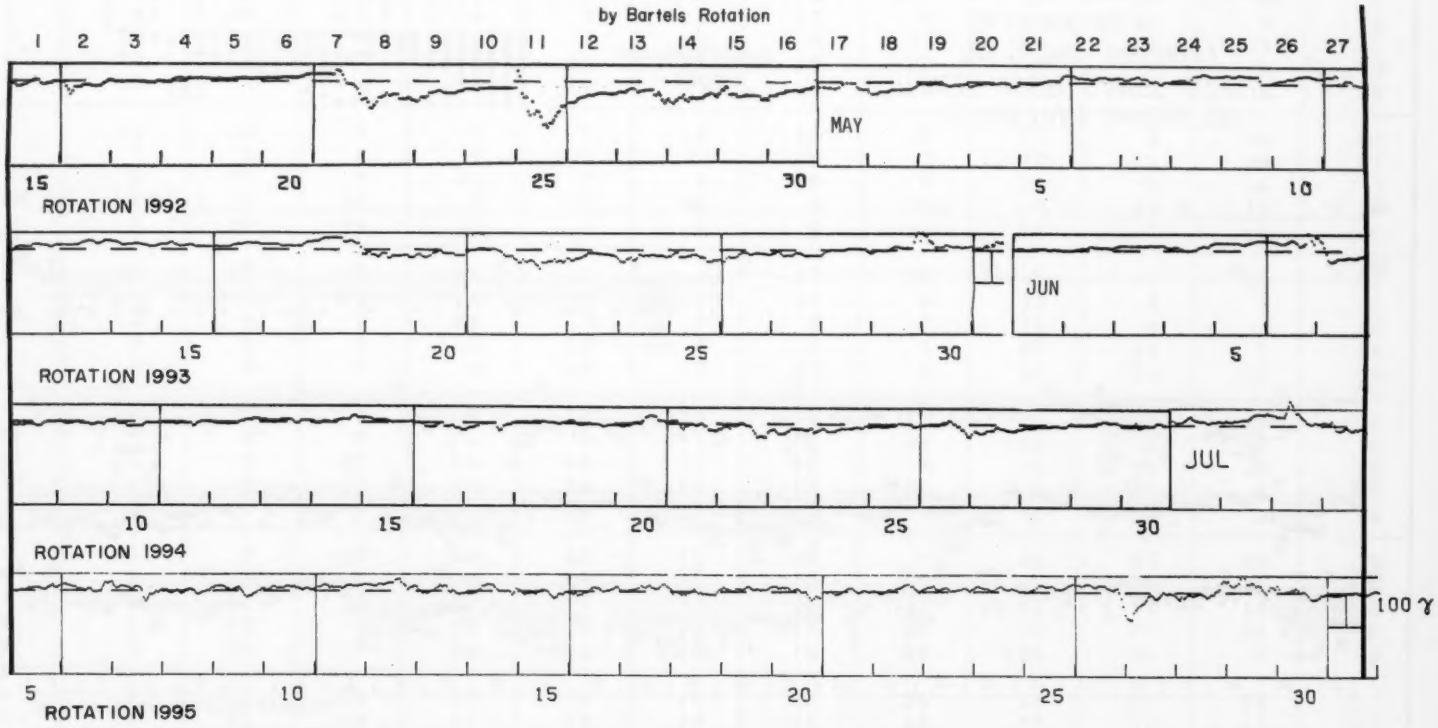
GEOMAGNETIC ACTIVITY INDICES


DAYS IN SOLAR ROTATION INTERVAL
ROT.-NO.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
1993
May 12 15 20 25 30 31 1 5 7 Jun
1994
Jun 8 10 15 20 25 30 1 4 Jul
1995
Jul 5 10 15 20 25 30 31 Jul
1996
Aug 1 5 10 15 20 25 27 Aug
1997
Aug 28 30 31 1 5 10 15 20 23 Sep
KEY
0 1 2 3 4 5 6 7 8 9
0 + - 0 + - 0 + - 0 + - 0 + - 0 + - 0 + - 0 + - 0 + - 0
▲ = sudden commencement
PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES
Kp (after Bartels)
Kp till 1979 July 31
Ks (from Wingst and Göttingen) till Aug 15

GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

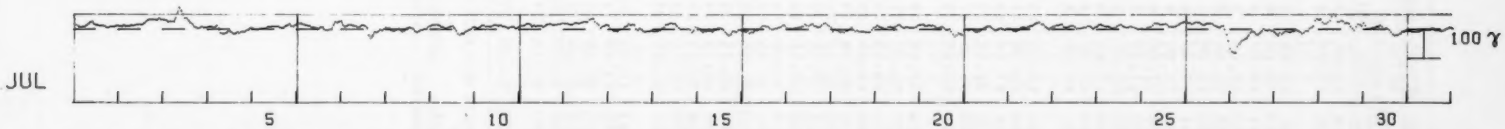
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

JULY 1979

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	15	12	8	9	8	9	13	13	23	26	17	14	13	12	11	11	9	6	6	9	9	9	12	12
2	10	10	14	10	11	10	13	12	13	15	16	16	15	20	26	31	34	33	33	32	31	37	33	33
3	31	29	25	26	26	24	37	52	73	62	49	36	36	28	21	16	8	5	2	4	9	5	5	7
4	9	8	5	7	12	2	-13	-16	-16	-13	-8	-8	-12	-16	-15	-11	-14	-10	-9	-9	-5	-2	4	4
5	0	-1	-2	0	3	2	2	5	9	7	10	10	10	9	5	4	5	11	13	17	11	9	13	15
6	19	20	17	15	13	12	11	6	7	4	2	1	6	6	-1	-4	-4	-2	-1	13	25	22	26	27
7	14	9	11	15	15	13	12	10	5	8	13	13	11	5	-20	-31	-23	-9	-12	-8	-1	-5	1	6
8	2	4	-3	-7	-5	-1	2	-4	-9	-6	3	5	7	4	1	-8	-11	-7	-3	-2	1	1	9	11
9	14	15	15	15	13	8	7	3	3	7	10	12	4	-5	-14	-19	-14	-14	-9	-5	-2	0	7	8
10	3	4	8	13	13	9	11	9	9	13	15	13	12	14	10	10	7	4	7	9	8	3	5	8
11	12	12	13	13	13	16	9	13	10	12	11	11	7	12	16	17	18	15	15	15	17	17	20	20
12	19	19	16	15	15	21	21	19	20	23	25	24	25	33	35	37	25	20	14	3	10	12	15	13
13	3	-1	-7	-5	-8	-2	0	1	8	11	18	13	16	14	0	-4	3	-2	-8	-10	-7	-8	-6	-7
14	-8	-8	-5	-4	2	6	15	16	19	21	16	18	12	5	0	0	0	-1	1	-2	-12	-4	8	5
15	1	-5	-10	-7	-6	-5	-4	-9	-4	-1	4	3	2	-2	-11	-16	-21	-17	-8	-8	-10	-3	-2	-5
16	-6	-10	-5	-13	-12	-11	-4	-4	-1	4	11	12	10	5	3	-1	0	2	3	6	8	13	14	4
17	2	2	0	2	4	5	7	9	11	17	13	11	13	18	12	10	7	9	14	20	21	15	11	6
18	-3	-2	-3	-6	-10	-3	-11	-5	-3	2	7	-1	-6	-4	-8	-8	-7	-9	-10	-10	-9	-1	6	8
19	13	9	7	5	2	1	5	9	7	6	10	14	16	10	6	7	9	6	5	5	6	8	13	15
20	16	16	11	12	13	12	13	11	3	4	6	9	5	-2	-2	0	-9	-17	-25	-20	-13	-16	-19	-5
21	-1	-4	-1	1	-5	-10	-9	-7	-4	1	4	5	10	5	4	-1	-5	-2	2	3	0	-2	1	2
22	2	-2	-7	-7	-4	-1	5	7	4	4	9	11	12	16	20	22	23	16	15	9	4	-1	3	8
23	10	13	13	15	17	8	6	7	10	12	12	5	1	3	3	4	6	7	11	11	7	1	7	9
24	14	16	13	11	9	10	7	3	3	6	11	14	16	10	7	5	7	10	7	5	3	0	1	2
25	-1	0	4	7	9	13	20	19	19	15	15	16	18	14	8	8	7	9	12	15	19	22	25	23
26	21	20	17	19	24	23	23	19	14	15	19	20	19	18	13	11	8	5	10	12	-1	-18	-41	-67
27	-77	-81	-82	-59	-51	-42	-38	-34	-31	-21	-12	-7	-10	-17	-20	-13	-7	2	-2	-5	-2	-4	-6	-11
28	-16	-22	-12	-17	-12	-7	-7	-10	-9	-7	-4	-3	-6	-10	-15	-12	-6	-6	3	6	11	30	36	32
29	35	23	18	13	24	20	43	61	45	25	24	29	27	20	22	15	9	2	-4	9	17	15	12	21
30	12	1	-1	2	5	4	9	9	13	9	0	2	1	-4	-11	-18	-22	-20	-18	-14	-8	-9	-5	-6
31	-7	-8	-9	-9	-9	-3	-5	-3	-1	-1	-3	-2	2	2	-4	-5	-5	-7	-6	-4	1	3	6	4



NOTE: Because of problems in the scale value and the baseline at the Honolulu Magnetic Observatory, data from only three observatories (San Juan, Kakioka and Hermanus) were used in the derivation of the above Dst values. It appears that the problems developed toward the end of June. Therefore the provisional Dst values for June may not be accurate near the end of that month.

PRINCIPAL MAGNETIC STORMS

JULY 1979

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HYB	07.6N	3	0300	..	..	..	..	03(4)	6	9	164	40	04	10
GUA	04.0N	3	0533	..	..	..	..	03(4)	5	--	80	20	03	18
COL	64.6N	6	1929	SC*	-22	-172	-15	07(6)	7	139	1360	500	07	21
NEW	55.1N	6	1929	SC*	6	31	6	06(7,8)	5	19	212	155	09	01
WIT	54.2N	6	1930	SC	- 2	+140	+ 7	06(7)	6	20	195	70	07	21
FRD	49.6N	6	1930	SC*	+ 2	+46	- 6	06(7) 07(5,6)	5	24	173	44	09	07
IRK	41.0N	6	1930	SC	- 2.3	102	14	06(7)	6	20	141	37	07	21
HON	21.1N	6	1930	SC	4	6	4	06(7,8)	3	10	20	38	07	21
JAI	17.3N	6	1930	SC	- 1.6	62	-14		-	8	116	35	08	01
ABG	09.5N	6	1930	SC	- 1.2	53	- 7	06(7)	6	7	113	45	08	01
HYB	07.6N	6	1931	SC	- .5	+59	- 3	06(7)	6	7	124	29	08	04
ANN	01.5N	6	1930	SC	--	--	--		-	--	--	--	08	01
TRD	01.1S	6	1930	SC	.3	53	71		-	5	170	119	08	01
PHG	18.6S	6	1931	SC	+ 1.3	+33	+34	06(7)	5	6	80	60	07	20
EYR	47.9S	6	1930	SC	4.8	18.4	12.1	06(7)	4	8	58	35	07	05
KGL	56.5S	6	1930	SC	+20	+32	+11	06(7)	5	--	--	--	07	22
JAI	17.3N	12	1239	SC	- 4.6	13	- 3		-	9	100	28	13	23
ABG	09.5N	12	1239	SC	- .4	11	- 3	13(5)	5	7	105	23	13	23
HYB	07.6N	12	1238	SC	- .2	+12	- 1	12(7) 13(5,6)	4	6	102	16	13	23
ANN	01.5N	12	1239	SC	- .7	17	7		-	5	121	34	13	23
TRD	01.1S	12	1239	SC	- .2	15	18		-	4	133	74	13	23
KGL	56.5S	12	1248	SC	+ 4	+ 6	+ 3	12(7)	4	--	--	--	13	09
NEW	55.1N	26	1833	SC	7	4	--	27(1)	6	43	114	245	28	06
WIT	54.2N	26	1833	SC	- 3	+70		27(6)	6	33	190	80	28	03
FRD	49.6N	26	1833	SC	- 2	+28	- 3	26(8) 27(1,2)	5	23	130	101	30	15
IRK	41.0N	26	1833	SC	- 1.6	51	9	26(7) 27(1,6)	5	15	152	35	27	22
SJG	29.9N	26	1834	SC	- 1	+19	+ 4	26(8)	6	6	146	25	27	08
HON	21.1N	26	1832	SC	2	2	62	27(2)	4	10	132	60	27	06
JAI	17.3N	26	1833	SC	- 7.2	31	- 5		-	7	93	36	28	03
ABG	09.5N	26	1833	SC	- .6	27	- 3	26(8) 27(2)	5	7	99	40	28	03
HYB	07.6N	26	1833	SC	- .2	+24	- 1	26(8) 27(2)	5	6	116	23	28	04
GUA	04.0N	26	1833	SC	--	+17	- 5	27(2)	5	10	70	30	27	10
ANN	01.5N	26	1833	SC	- 1	29	19		-	6	159	--	28	03
TRD	01.1S	26	1833	SC	.2	20	31		-	5	216	108	28	03
PHG	18.6S	26	1833	SC	+ .8	+14	+14	26(7,8) 27(1,2)	5	8	140	60	30	18
HER	33.7S	26	1800	..	..	..	..	26(8) 27(1)	5	19	78	61	28	07
EYR	47.9S	26	1833	SC	1.7	11.5	5.8		-	9	123	35	27	05
KGL	56.5S	26	1835	SC*	+ 8	+17	+10	27(1)	7	--	--	--	27	06
JAI	17.3N	28	2100	..	..	..	..		-	8	133	41	30	03
ABG	09.5N	28	2100	..	..	..	..	29(3,7)	5	6	159	27	30	03
HYB	07.6N	28	2101	SC	- .1	+11	- 1	29(3)	5	6	162	18	30	11
HYB	07.6N	28	2115	SC	- .2	+14	- 1	29(3)	5	6	162	18	30	11
ANN	01.5N	28	2100	..	..	..	..		-	--	--	--	30	03
TRD	01.1S	28	2100	..	..	..	..		-	3	199	102	30	03
WIT	54.2N	29	04--	..	..	..	..	29(6,7,8)	5	20	150	55	30	01

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR COLLEGE EYREWELL FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU
HYDERABAD JAIPUR KERGUELEN NEWPORT PORT MORESBY SAN JUAN SITKA TRIVANDRUM WITTEVEEN

RADIO PROPAGATION QUALITY INDICES

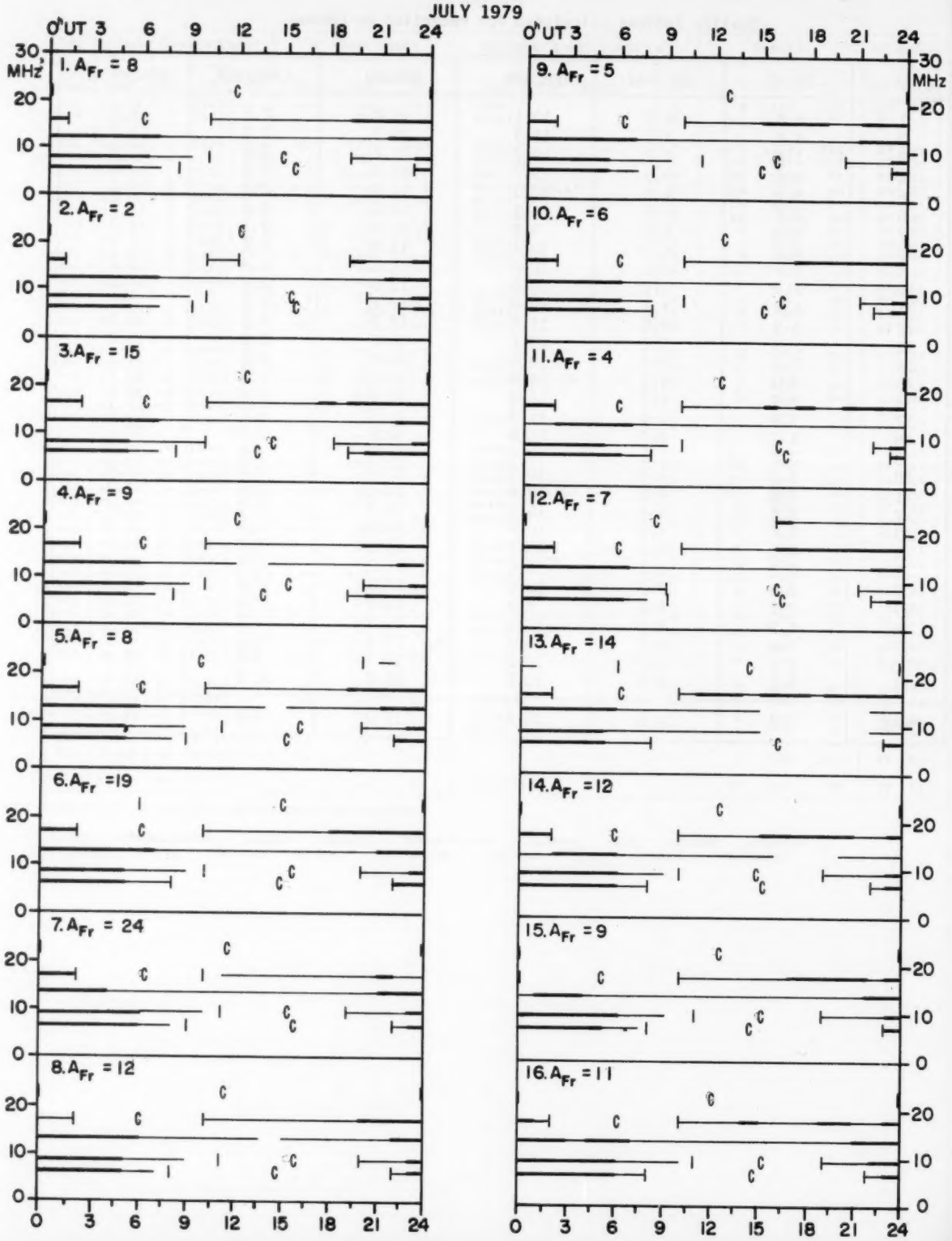
JULY 1979

Quality Indices calculated for reception at Lüchow

DAY	TOKYO	HALIFAX	TEHERAN	MOSCOW	CANBERRA	BRACKNELL
1	4.3	4.3	10.1	10.8	2.9	11.3
2	4.7	4.4	11.3	10.7	2.9	12.7
3	3.4	4.7	10.7	11.7	2.6	12.2
4	2.5	4.5	10.7	11.9	3.0	12.0
5	3.6	4.5	10.3	11.9	2.9	12.4
6	3.4	4.5	10.3	12.0	2.6	11.7
7	2.5	4.3	9.8	10.4	2.9	11.0
8	4.2	4.3	10.4	11.5	2.7	11.9
9	4.7	4.7	10.6	11.2	2.6	11.7
10	4.9	4.5	10.6	11.4	3.1	11.9
11	4.8	4.4	10.8	12.2	2.7	12.5
12	3.9	4.8	11.2	12.5	3.3	12.9
13	2.9	5.1	10.1	10.6	3.8	11.2
14	2.7	4.4	10.5	10.9	3.0	11.3
15	3.0	4.4	10.4	10.7	2.8	11.7
16	3.5	4.5	10.5	10.9	2.6	12.0
17	3.9	4.4	11.2	11.3	2.7	11.8
18	3.0	4.7	10.8	10.9	2.9	12.1
19	3.7	4.8	10.8	10.8	2.4	11.1
20	3.2	4.4	10.3	11.7	2.4	11.8
21	3.5	4.6	10.4	10.6	3.0	11.3
22	3.5	4.4	10.3	10.7	2.0	11.6
23	4.7	4.5	10.7	10.5	2.4	11.8
24	4.3	4.5	10.1	11.8	2.6	11.2
25	4.2	4.5	10.6	11.2	2.9	11.3
26	2.9	4.2	10.0	12.2	2.6	11.9
27	2.1	4.6	9.9	10.6	2.8	11.6
28	4.2	4.5	10.2	11.1	3.3	11.0
29	3.6	4.6	9.8	11.9	3.1	12.2
30	2.5	4.7	10.2	11.1	3.8	12.3
31	4.1	4.6	10.0	12.0	2.9	12.6
MEAN	3.6	4.5	10.4	11.3	2.8	11.8

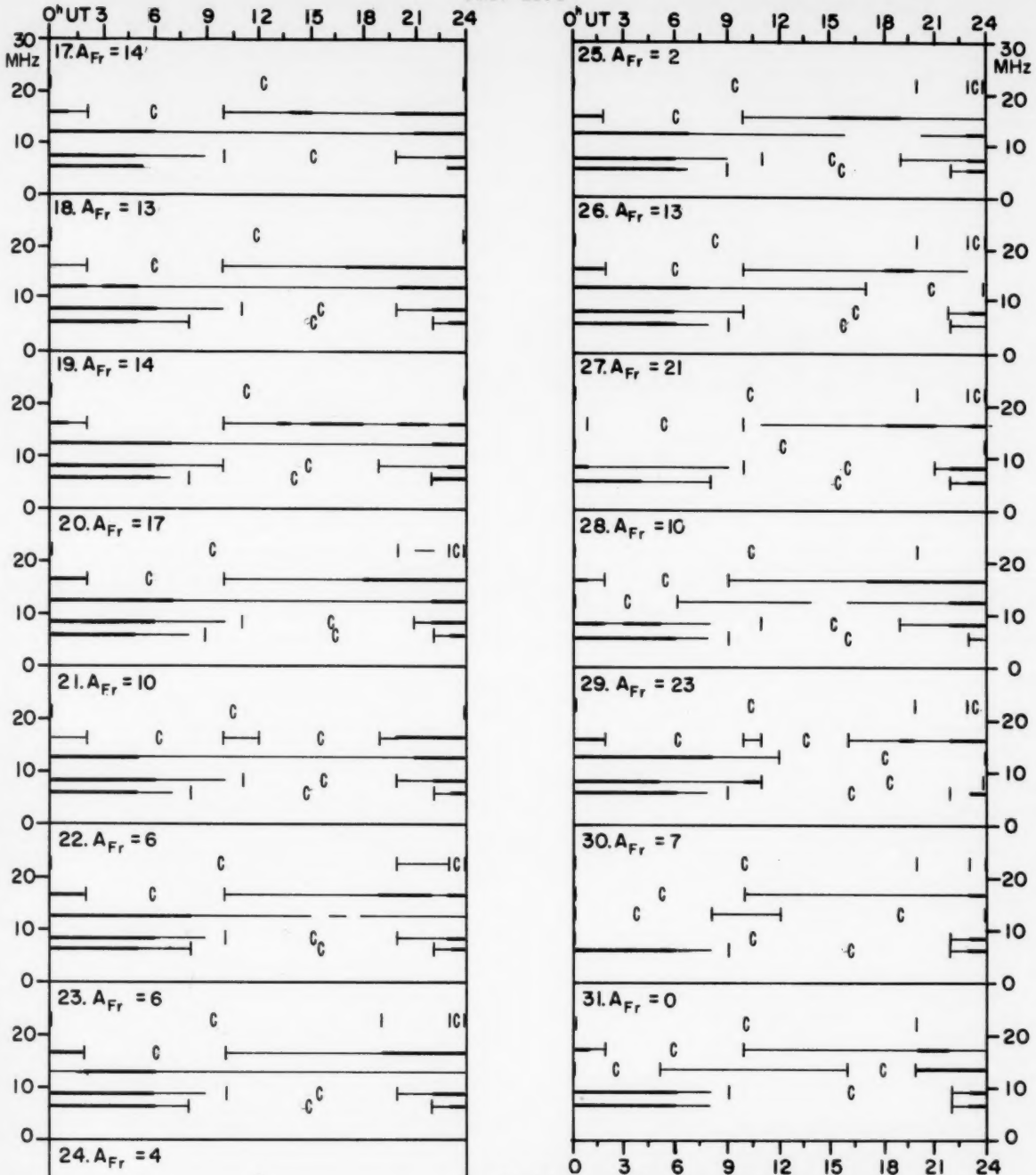
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JULY 1979



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JULY 1979



Field strengths from five frequencies, 6.4, 8.5, 12.8, 17.1 and 22.4 MHz, observed on a Lüchow -Halifax circuit are represented above. Heavy solid lines represent field strengths -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. **Adapted from Observations by Deutsche Bundespost**

☆GPO 1979—677-073/5

Astronomy QB1.U57
N0421,pt2
R-A

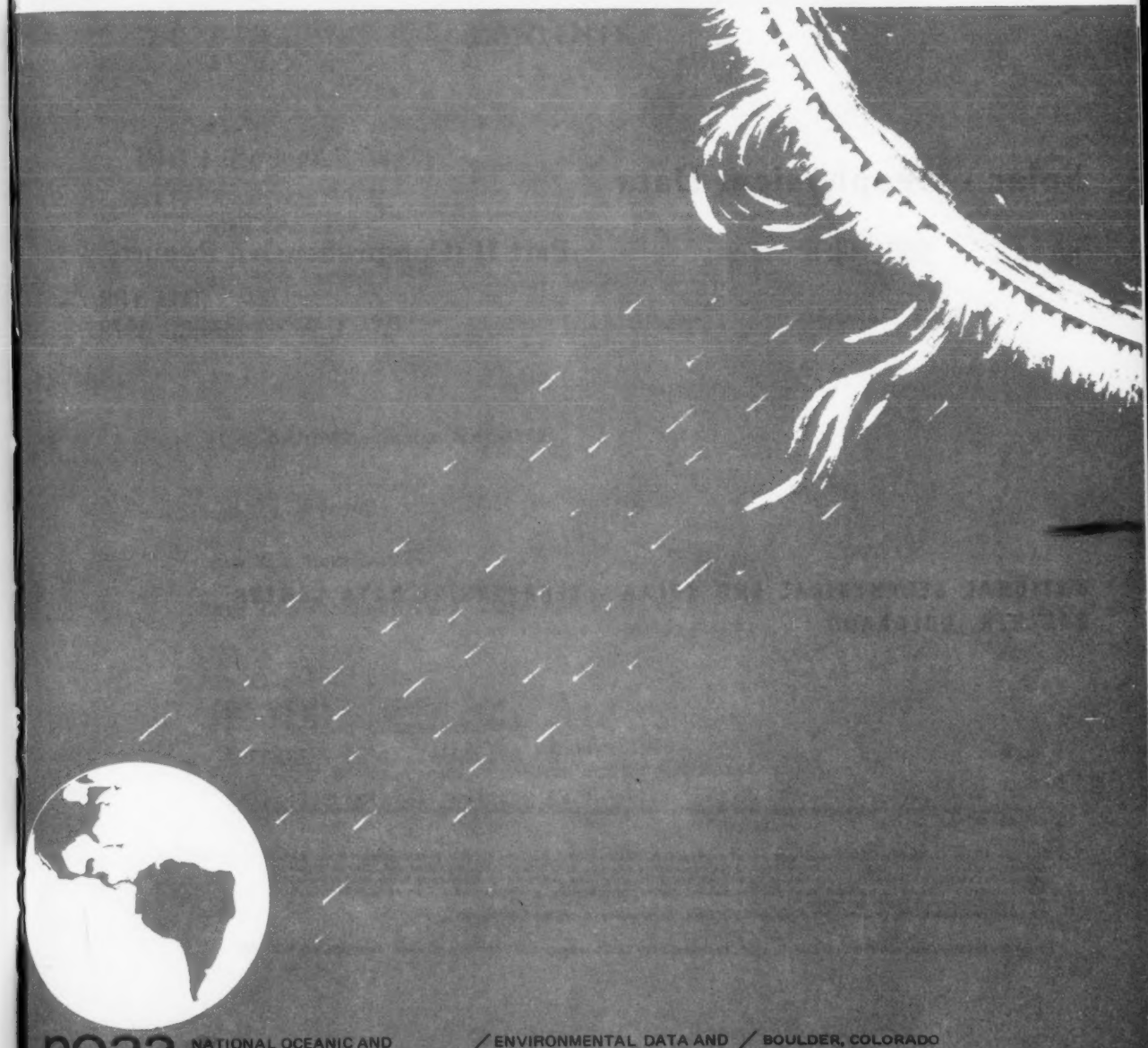
SEPTEMBER 1979 Number 421 -- Part II

OCT 17 1979

Solar-Geophysical Data comprehensive reports

Data for March 1979 & Miscellanea

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979



noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / BOULDER, COLORADO

U.S. DEPARTMENT OF COMMERCE
Juanita M. Kreps, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Richard A. Frank, Administrator
ENVIRONMENTAL DATA AND INFORMATION SERVICE
Thomas D. Potter, Acting Director

Solar - Geophysical Data

NO. 421 SEPTEMBER 1979

Part II (Comprehensive Reports)

DATA FOR
MARCH 1979

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

For obtaining bulletins on a data exchange basis, send request to: World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado 80303.

For sale through the National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO 80303. Subscription Price: $34.00 annually for both part I (Prompt Reports) and part II (Comprehensive Reports) or $18.00 annually for either part. Annual supplement containing explanation is included. For foreign mailing add $32.00 for both parts or $16.00 for either part. Single issue price is $1.50 for either part and $1.40 for the extra issue. Make checks and money orders payable to: Department of Commerce, NOAA/NGSDC. Note: $2.00 Minimum charge per order.
To standardize referencing these reports in the open literature, the following format is recommended:

Solar-Geophysical Data, 414 Part I (or Part II), pages, December 1979 U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 421

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

CONTENTS

PAGE

Part I (Prompt Reports)

Index for 1979 2

Data for August 1979 3-42

Data for July 1979 43-167

Part II (Comprehensive Reports)

Index for 1979 2

Data for March 1979 3-40

Data for February 1979 (Data not available at time of publication)

Miscellaneous Data 41-53
Geomagnetic Indices June 1979
Sudden Commencements
Energetic Solar Particles January 1979
IMP 8 Electrons, Protons and Alpha Particles
Solar-Terrestrial Activity 1978

DETAILED COVERAGE FOR 1979 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1979 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
A.	SOLAR AND INTERPLANETARY PHENOMENA								
A.1	Sunspot Drawings	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	421A 11
A.2b	Zurich Final Sunspot Numbers Rz								
A.2c	American Relative Sunspot Numbers RA	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	421A 11
A.3a	Mt. Wilson Magnetograms	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	418B 50	418B 60	417A106	418A108	419A110	420A110	421A112	
A.3c	Kitt Peak Magnetograms	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.3d	Mean Solar Magnetic Field (Stanford)	414A 42	415A 44	416A 42	417A 36	418A 38	419A 38	420A 40	421A 40
A.3e	Stanford Magnetograms	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.4	H-alpha Filtergrams	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.5	Calcium Plage Drawings - McMath (or Catania)	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.5a	Calcium Plage (McMath) and Sunspot Regions	418B 50	418B 60	417A106	418A108	419A110	420A110	421A112	
A.5b	McMath Daily Calcium Plage Indices	415A125	416A116	417A118	418A118	419A123	420A121	421A125	
A.6	H-alpha Synoptic Charts	415A 48	416A 46	417A 40	418A 42	419A 43	420A 44	421A 44	
A.6b	Synoptic Chart and Active Regions (Paris)	419B 4	420B 4	421B 4					
A.6c	Stanford Solar Magnetic Field Synoptic Charts	415A 49	416A 47	417A 41	418A 43	419A .	420A 46	421A 46	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts				418A 45	419A 45	420A 48	421A 48	
A.7f	Helium D3 Chromosphere (Big Bear)	---	---	416A 38	417A 33	418A 34	419A 34	420A 35	421A 37
A.7j	Helium Synoptic Maps (KPNO)	414A 34	415A 40	416A 36	417A 32	418A 33	419A 33	420A 34	421A 36
A.7h	Coronal Line Emission (Sac Peak)	415A 52	416A 50	417A 44	418A 48	419A 48	420A 50	421A 50	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	421A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	421A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	414A 11	415A 11	416A 11	417A 9	418A 11	419A 11	420A 11	
A.9cb	8.6 cm Radio Maps of the Sun (NOSC - La Posta)	---	---	---	---	419A 48	420A 50	421A 50	
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	---	---	---	---	419A 48	420A 50	421A 50	
A.10a	169 MHz - Interferometric Observations (Nancay)	414A 24	415A 25	416A 25	417A 21	419B 52	420B 69	420A 24	
A.10c	21 cm East-West Solar Scans (Fleurs)	414A 27	415A 28	416A 28	417A 24	418A 25	420B 70	420A 27	421A 28
A.10d	43 cm East-West Solar Scans (Fleurs)	414A 28	415A 29	416A 29	417A 25	418A 26	420B 71	420A 28	421A 29
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	414A 26	415A 27	416A 27	417A 23	418A 24	419A 26	420A 26	421A 27
A.10f	3 cm East-West Solar Scans (Toyokawa)	414A 25	415A 26	416A 26	417A 22	418A 23	419A 25	420A 25	421A 26
A.11k	Solar X-ray Radiation (SOLRAD 11)	415A129	416A120	417A119	418A122	419A126	420A124	421A129	
A.11g	Solar X-ray (SMS/GOES) (graphs)	419B 33	420B 53	421B 35					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	414A 36	---	---	---	---	---	---	---
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	414A 37	---	---	---	---	---	---	---
A.12e	Energetic Solar Particles (IMP H & J)	421B 43	420B 48	421B 30					
A.12f	Energetic Solar Particles (GMS/SEM)	---	---	---	---	---	---	---	---
A.13a	Solar Wind (Pioneers 6 & 7)	414A 36	---	---	---	---	---	---	---
A.13ab	Solar Wind (Pioneers 8 & 9)	414A 37	---	---	---	---	---	---	---
A.13d	Solar Wind from IPS Measurements	414A 39	415A 45	416A 39	417A 37	418A 35	419A 35	420A 37	
A.13e	Solar Plasma (IMP H & J)	419B 32	419B 47	421B 29					
A.13f	Solar Wind (Pioneer 12 (Venus))	414A 38	415A 39	416A 35	417A 31	418A 32	419A 32	420A 36	421A 35
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 9)	414A 37	---	---	---	---	---	---	---
A.17c	Inferred IP Magnetic Field	415A 42	415A 42	417A 34	417A 34	418A 36	419A 36	420A 38	421A 38
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	---	---	---	---	---	---
A.18	Interplanetary Electric Field (Pioneer 9)	414A 37	---	---	---	---	---	---	---
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA								
B.52	Graphs of Transmission Frequency Range	415A162	416A166	417A166	418A166	419A168	420A166	421A166	
B.53	Quality Figures Based on Frequency Ranges	415A161	416A165	417A165	418A165	419A167	420A168	421A165	
C.	FLARE-ASSOCIATED EVENTS								
C.1a	Optical Observations Flares	414A 14	414A 15	416A 14	417A 12	418A 14	419A 14	420A 14	
C.1ba	Optical Observations Flares (Standardized Data)	420B 82							
C.1d	Flare Patrol Observations	414A 23	415A 24	416A 24	417A 20	418A 23	419A 24	420A 23	
C.1d	Flare Patrol Observations	420B120							
C.1e	Flare Indices (by day)	420B119							
C.1f	Flare Indices (by Region)								
C.3	Solar Radio Waves - Outstanding Occurrences	419B 8	420B 8	421B 10					
	Solar Radio Waves - Fixed Frequencies - Selected	414A 29	415A 30	416A 30	417A 26	418A 28	419A 27	420A 29	421A 30
C.3t	43.25, 80 and 160 MHz Selected Bursts (Culgoora)	415A147							
C.4a	Solar Radio Spectral Obs. (Fort Davis)	417B 60	417B 62	417A138	420B 72	420B 75	420A139		
C.4d	Solar Radio Spectral Obs. (Culgoora)	415A129	416A134	417A138	418A137	419A142	420A139	421A145	
C.4e	Solar Radio Spectral Obs. (Weissenau)	415A129	416A134	417A138	418A137	419A142	420A139		
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	415A129	416A134	417A138	418A137	419A142	420A139	421A145	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	415A129	416A134	417A138	418A137	419A142	---	421A145	
C.4i	Solar Radio Spectral Obs. (Durnten)	415A129	416A134	417A138	418A137	419A142			
C.4j	Solar Radio Spectral Obs. (Manila)	415A129	416A134	417A138	418A137	419A142	420A139	421A145	
C.5e	Solar X-ray (SMS/GOES) (graphs)	419B 33	420B 53	421B 35					
C.6	Sudden Ionospheric Disturbances	415A126	416A117	417A119	418A119	419A124	420A122	421A126	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA								
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	415A155	416A158	417A158	418A158	419A160	420A160	421A159	
D.1ba	27-day Chart of Kp Indices	415A157	416A160	417A160	418A160	419A162	420A162	421A161	
D.1c	27-day Chart of C9								
D.1d	Principal Magnetic Storms	415A158	416A163	417A163	418A163	419A165	420A165	421A164	
D.1e	Reduced Magnetograms								
D.1f	Sudden Commencement and Solar Flare Effects	415A160	416A164	418B 76	419B 63	419A166	421B 42		
D.1g	Equatorial Indices Dst	416B 90	416A162	417A162	418A162	419A164	420A164	421A163	
D.1h	Geomagnetic Substorm Log (Boulder)	414A 43	415A 46	416A 43	417A 38	418A 39	419A 39	420A 41	421A 41
F.	COSMIC RAYS								
F.1a	Cosmic Ray Neutron Counts (Deep River)	415A154	416A151	417A151	418A151	419A153	420A155	421A158	
F.1b	Cosmic Ray Neutron Counts (Climax)	416B 88	416A151	417A151	418A151	419A153	420A155	421A158	
F.1e	Cosmic Ray Neutron Counts (Alert)	415A154	416A151	417A151	418A151	420B 78	420A155	421A158	
F.1f	Cosmic Ray Neutron Counts (Calgary)								
F.1h	Cosmic Ray Neutron Counts (Thule)	419B 62	419B 62	419B 62	419B 62	419A153	420A155	421A158	
F.1i	Cosmic Ray Neutron Counts (Kiel)	415A154	416A151	417A151	418A151	419A153	420A155	421A158	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	415A154	416A151	417A151	418A151	419A153	420A155	421A158	
F.1k	Cosmic Ray Neutron Counts (Kula)								
F.1l	Cosmic Ray Neutron Counts (Huancayo)		417B 67	418B 72	419B 58	420B 79	420A155	421A158	
H.	MISCELLANEOUS								
H.60	IUWDS Alert Decisions	414A 4	415A 5	416A 4	417A 4	418A 5	419A 5	420A 5	421A 5
H.62	Abbreviated Calendar Record	420B 58							

Notes:

"415A 52" listed under 1979 Jan means that the sunspot drawings for January 1979 were contained in *Solar-Geophysical Data* Number 415 - Part I, beginning on page 52.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 421 Part II (Comprehensive)

MARCH 1979 DATA

Contents

	Page
Active Regions	4-6
Synoptic Solar Maps	8-9
Solar Flares (Data not available at time of publication)	
Hα Solar Flares (Standardized Data)	
Daily Flare Indices	
Intervals of No Flare Patrol Observation	
Solar Radio Emission	
Outstanding Occurrences (Fixed Frequencies)	10-28
Energetic Solar Particles and Plasma	
IMP 8 Solar Wind Plasma	29
IMP 8 Electrons	30
IMP 8 Low, Intermediate and High Energy Protons	31-33
IMP 8 Alpha Particles	34
Solar X-ray Radiation	
SMS-GOES	35-40

ACTIVE REGIONS

CARRINGTON ROTATION 1678

(February 3 to March 2, 1979)

Region No.	Coordinates Lat.	Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1677	Activity at West Limb
1	12°N	360°	+4	2			disappeared
2	7 N	357	+3	2			decreasing
3	10 N	356	>6	4		(1)	decreasing
4	22 N	356	>6	2			dispersed
5	14 N	351	>6	2			decreasing
6	19 S	347	>6	1	x	(2)	decreasing
7	14 S	340	>6	6			decreasing
8	22 S	330	>6	1	x		decreasing
9	16 S	325	>6	2	x	(6)	decreasing
10	16 N	318	>6	1	x	(8)	dispersed
11	16 N	300	-6	1	x	(9)	stable
12	36 N	295	>6	1	x		decreasing
13	14 N	292	+1	3			stable
14	20 S	288	>6	3			decreasing
15	16 N	285	>6	3		(11)	decreasing
16	19 S	275	+4	3			stable
17	27 N	273	>6	1	x	(10)	decreasing
18	31 S	264	>6	1	x	(15)	dispersed
19	24 N	258	-1	1	x		disappeared
20	25 S	250	>6	1	x	(22)	decreasing
21	13 S	241	+2	1	x		decreasing
22	19 S	237	>6	3			decreasing
23	36 S	224	+5	2			decreasing
24	9 S	218	+3	1	x		dispersed
25	35 S	218	+3	2			decreasing
26	25 S	215	>6	1	x	(28)	dispersed
27	11 N	214	>6	2		(27)	dispersed
28	20 N	207	+2	3			decreasing
29	25 S	204	>6	1	x		dispersed
30	24 S	201	+1	2			decreasing
31	17 S	200	>6	x			disappeared
32	28 N	187	>6	1	x		dispersed
33	8 N	180	+1	4			stable
34	17 N	177	>6	5			stable
35	15 S	175	+4	2			decreasing
36	22 S	167	-3	1	x		stable
37	2 N	166	>6	2			decreasing
38	16 S	165	-1	1	x		stable
39	20 N	164	>6	2		(34)	decreasing
40	7 N	154	>6	1	x	(38)	decreasing
41	14 S	150	>6	1	x	(41)	dispersed
42	17 N	150	>6	7			stable
43	15 N	139	>6	3		(45)	decreasing
44	27 S	134	>6	3			decreasing
45	13 S	113	>6	1	x		decreasing
46	23 N	111	>6	1	x		decreasing
47	19 S	100	>6	1	x		dispersed
48	26 N	98	>6	1	x		dispersed
49	19 S	94	0	2			decreasing
50	29 S	87	>6	1	x	(51)	dispersed
51	25 S	83	>6	2			decreasing
52	33 S	75	0	3			decreasing
53	12 N	74	+2	1	x		disappeared
54	23 S	73	>6	1	x	(54)	dispersed
55	25 S	70	>6	2			decreasing
56	14 S	63	>6	1	x		dispersed
57	37 N	58	>6	3			decreasing
58	19 S	50	+1	2			decreasing
59	10 N	15	>6	1	x		dispersed
60	33 S	13	-2	2			decreasing
61	23 N	29	>6	1	x		decreasing
62	11 N	19	>6	1	x		dispersed
63	22 S	17	>6	2			decreasing
64	17 S	14	-2	3			increasing
65	10 N	7	>6	1	x	(61) (3)	decreasing

ACTIVE REGIONS

CARRINGTON ROTATION 1679

(March 2 to March 30, 1979)

Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1678	Activity at West Limb
1	15°S	353°	>6	1	x		decreasing
2	16 N	350	>6	1	x	(3,4,5)	dispersed
3	23 S	349	>6	3			decreasing
4	36 N	349	+2	3			decreasing
5	23 S	341	+4	2			decreasing
6	15 S	332	>6	1	x	(7,9)	decreasing
7	9 N	326	>6	2			decreasing
8	25 N	324	+4	1	x		dispersed
9	20 S	320	>6	2			decreasing
10	24 S	319	>6	1	x	(8)	decreasing
11	21 S	315	0	2			decreasing
12	23 N	311	0	3			decreasing
13	17 N	304	>6	1	x	(11)	decreasing
14	12 N	296	>6	2			decreasing
15	17 N	290	>6	3		(13)	decreasing
16	21 S	289	>6	1	x	(14)	dispersed
17	11 S	288	+2	2			decreasing
18	12 N	287	+4	3			decreasing
19	16 S	285	>6	2			decreasing
20	17 S	281	+3	2			decreasing
21	19 N	277	>6	1	x	(15)	decreasing
22	22 S	271	>6	1	x	(16)	dispersed
23	17 N	261	>6	1	x		dispersed
24	11 N	253	+3	1	x		stable
25	24 S	252	>6	1	x		dispersed
26	14 S	248	>6	2			decreasing
27	19 N	246	>6	1	x		decreasing
28	25 N	244	+3	2			stable
29	22 S	238	>6	1	x		dispersed
30	29 S	225	>6	2			decreasing
31	24 S	211	+1	2			decreasing
32	19 N	201	+6	1	x		decreasing
33	21 S	201	+6	1	x		dispersed
34	27 S	198	-2	1	x		decreasing
35	32 S	198	0	1	x		dispersed
36	33 N	187	0	1	x		disappeared
37	10 N	185	>6	1	x	(33)	decreasing
38	28 N	180	+3	1	x		decreasing
39	19 N	172	>6	1	x	(34)	decreasing
40	7 N	171	>6	1	x		decreasing
41	41 N	166	+2	2			decreasing
42	21 N	159	-2	2			decreasing
43	10 N	157	>6	1	x	(40)	decreasing
44	30 N	157	>6	1	x		dispersed
45	12 N	154	-5	2			(?)
46	18 N	152	>6	2		(42)	decreasing
47	15 S	138	>6	2			dispersed
48	23 S	137	-2	2			decreasing
49	15 S	135	-2	2			stable
50	12 S	134	>6	3			decreasing
51	17 N	133	>6	1	x		decreasing
52	8 N	131	+1	3			stable
53	29 S	126	>6	1	x	(44)	dispersed
54	14 S	122	>6	1	x	(45)	dispersed
55	7 N	120	>6	3			decreasing
56	14 N	114	-2	1	x		stable
57	13 S	111	>6	2			stable
58	23 N	110	>6	1	x		decreasing
59	24 N	107	+1	2			decreasing
60	27 N	107	>6	1	x		decreasing

ACTIVE REGIONS

CARRINGTON ROTATION 1679

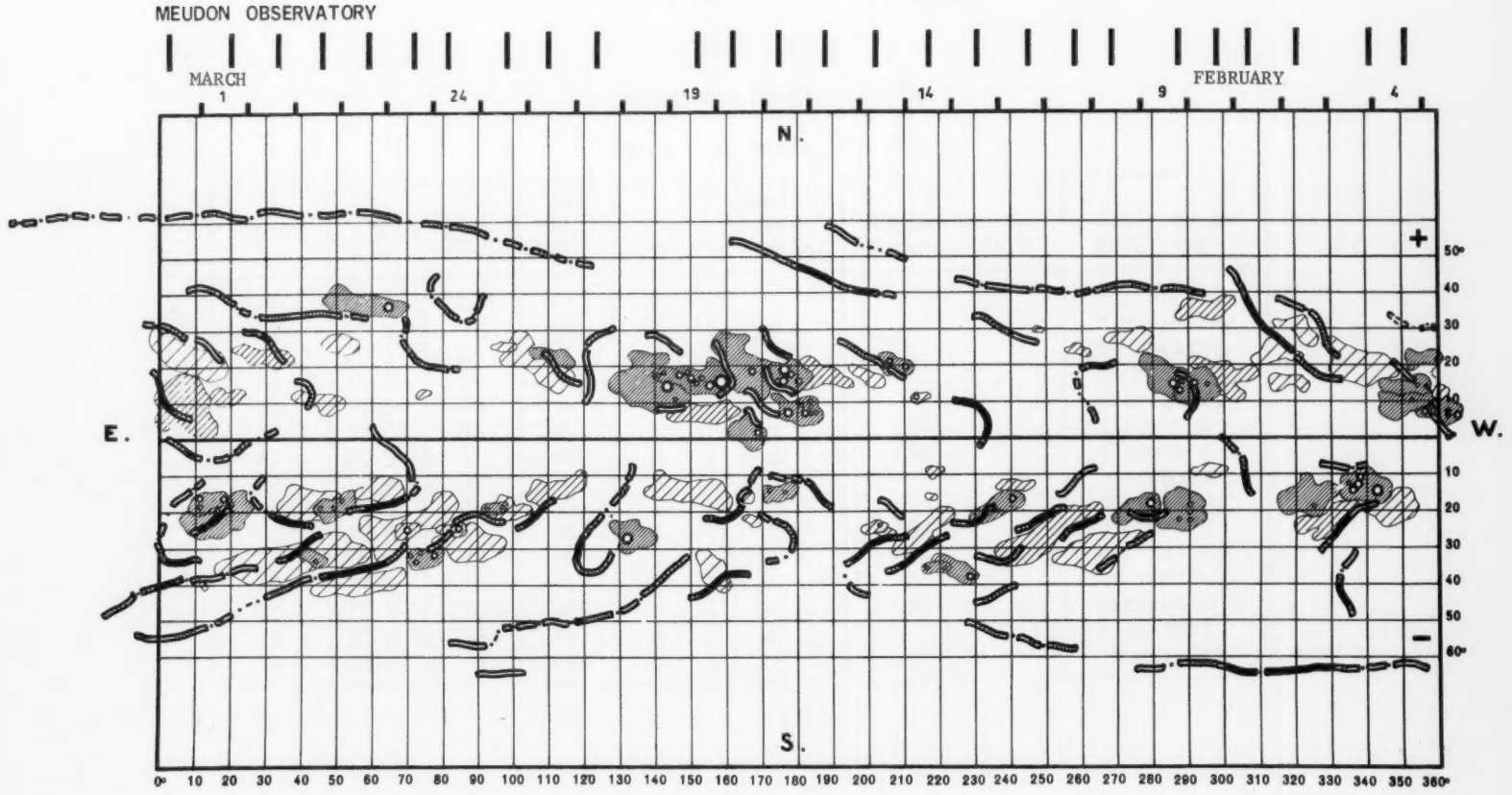
(March 2 to March 30, 1979)

Region No.	Coordinates		Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1678	Activity at West Limb
	Lat.	Long.					
61	8°N	106°	+2	2			decreasing
62	31 N	92	+5	1	x		disappeared
63	28 S	86	>6	3			decreasing
64	25 N	75	>6	1	x		decreasing
65	31 S	60	>6	3			decreasing
66	31 S	56	>6	1	x	(54)	dispersed
67	20 S	51	>6	1	x	(58)	dispersed
68	7 N	35	>6	5			decreasing
69	36 S	30	>6	1	x		decreasing
70	40 N	25	>6	1	x	(57)	dispersed
71	12 N	16	>6	1	x	(62)	decreasing
72	22 S	16	>6	1	x	(63)	decreasing
73	19 S	10	>6	1	x	(64)	decreasing
74	22 N	6	+3	1	x		dispersed
75	13 S	5	+4	2			increasing

SYNOPTIC SOLAR MAP

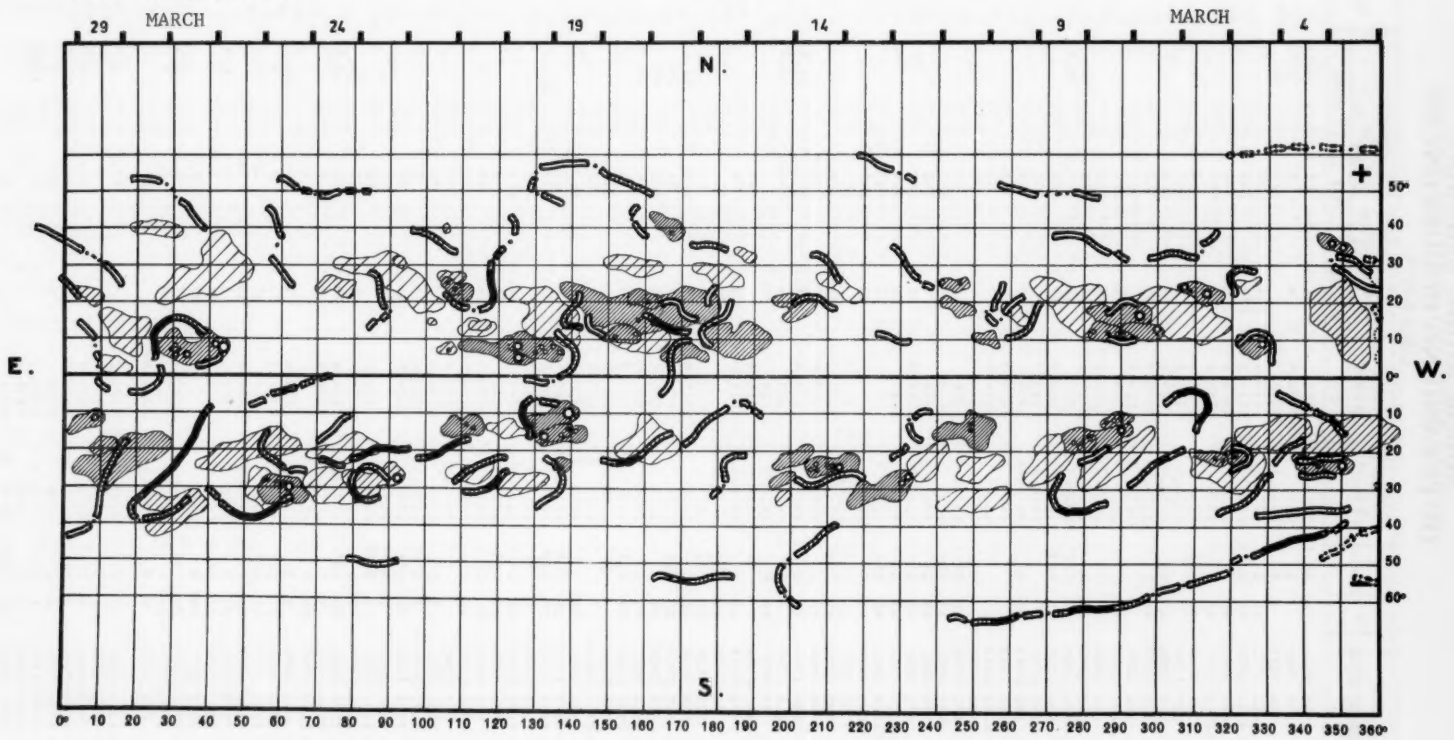
CARRINGTON ROTATION 1678

FEBRUARY 3 TO MARCH 2, 1979



SYNOPTIC SOLAR MAP
CARRINGTON ROTATION 1679
MARCH 2 TO MARCH 30, 1979

MEUDON OBSERVATORY



9 Mar 79

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	4995	BOUL	4 SF	0019.5	0020	1.5	12	4		
	5730	IRKU	1 S	0333	0304.4	4	12	1		
	234	POTS	8 S	0648.6	0643.7	.4	210	50		
	10400	BERN	46 C	0839	1015.1	285	175			
	8400	BERN	46 C	0839	1015.1	285	290			
	8400	BERN	46	0839	1015.1	285	770			8[illegible]
	10400	BERN	46	0839	1015.1	285	500			
	6100	KISV	32 ABS	0928	0947	32	-2			
	127	TORN		1000.5	1022.1		540			
	127	TORN	49 GB	1000.5	1009.6	33	880			
	113	POTS	46 C	1004.1	1022.5	36	700			
	100	GORK		1005 E	1014.8		3000			
	100	GORK	46 C	1005 E	1009	36	270			
	200	GORK	27 RF	1005.2	1016.1	41	130			
	202	IZMI	25 R	1006	1015.3	18	130	40		
	9100	GORK	21 GRF	1006.3	1027	69.3	37.5	31.5		
	650	GORK	29 PBI	1006.6E	1018.7	37.2	39			
	650	GORK		1006.6E	1016.7		300			
	650	GORK	45 C	1006.6E	1010	12	45			
	6100	KISV		1006	1016.3		63			
	6100	KISV		1006	1014.5		69			
	6100	KISV		1006	1014		66			
	6100	KISV	45 C	1006	1012	19	31			
	9500	BERL	49 GB	1007	1018	75	460			
	3000	BERL	49 GB	1007	1018	70	350	U		
	1470	BERL	49 GB	1007.5	1015.7	68	135			
	15000	KISV	47 GB	1007	1017	58	359			
	10715	OWIN	45 C	1007		50	280	D		
	2650	OWIN	45 C	1007		20	160	D		
	4995	ATHN	15 CGB	1008.1	1017.7		526.6			
	4995	ATHN	15 CGB	1008.1	1015.2	54.8	468.6	140.6		
	2695	ATHN	14 C	1008.2	1017.7		329.6			
	2695	ATHN	14 C	1008.2	1015.9	53.3	292.2	87.6		
	1415	ATHN	4 S/F	1008.2	1015	54	144.3	43.3		
	29	UPIC	48 C	1008.4	1010	22.7				
	950	GORK		1008.6	1016.8		97			
	950	GORK	46 C	1008.6	1015.1	11	78			
	33	UPIC	48 C	1008.8		20.5				
	536	ONDR	29 PBI	1008	1034	35	11	9		
	536	ONDR	46 C	1008	1015.8	17	416	D 41		
	608	ONDR	29 PBI	1008	1034	34	21	16		
	808	ONDR	48 C	1008	1016.7	19	182	47		
	930	BORD	45 C	1008	1017.2	15	86	29		
	2950	GORK	30 PBI	1009 E	1027.2	24.7	54			
	2950	GORK		1009 E	1020.8		393			
	2950	GORK		1009 E	1017.5		766			
	2950	GORK	46 C	1009 E	1016.1	18	D 649			
	8800	ATHN	15 CGB	1009.1	1017.5		735.7			
	8800	ATHN	15 CGB	1009.1	1015.1	53.8	739	221.7		
	9100	GORK		1010.5	1017.3		252			
	9100	GORK	46 C	1010.5	1015.1	16.5	451			
	950	GORK	30 PBI	1019.7	1033	28.3	8			
	930	BORD	46 C	1027	1035.2	16	49	8		
	950	GORK	45 C	1033.8	1034.1	2.9	28			
	950	GORK		1033.8	1035.2		38			
	3000	BERL	3 S	1130	1134.4	7.5	24			
	1470	BERL	3 S	1130.5	1132.6	6.5	5			
	7000	SAOP	20 GRF	1130.5	1134.5	14.2	16			25L
	2650	OWIN	1 S	1130		7	20	10		
	6100	KISV	4 S/F	1130	1134.2	7	10			
	2950	GORK	5 S	1131	1134.4	5.8	30	15		
	9100	GORK	20 GRF	1132.3	1134.4	14.4	10	3.5		
	9500	BERL	1 S	1133.5	1134.4	2.5	8			
	6100	KISV	24 R	1137			4			
	245	SGMR	6 S	1253	1253.4	1.8	35.7	10.7		
	4995	BOUL	20 GRF	1253	1301.5	23.5	9	3		
	2800	OTTA	21 GRF	1450	1512	45	2.8	1.4		
	2800	OTTA	40 F	1454.5	1456.5	12	3.2			
	2800	OTTA	24 R	1550	1553	3	2.6	1.3		
	2800	OTTA	27 RF	1550		57	2.6	2.4		
	2800	OTTA	24P R	1553		47	2.6			
	2800	OTTA	26 FAL	1640	1647	7	-2.6	-1.3		
	2800	OTTA	240 R	2115	2115	60	6	3		
	700	SYDN	1 S	2346.2	2346.4	.7	18			
2	1415	MANI	4 S/F	0017.9	0020.2	5.1	17.1	6.7		
	1415	SYDN	1 S	0020.2	0020.4	.5	7			
	2695	MANI	3 S	0020.4	0020.7	1	12.7	6.3		
	2695	PENT	3 S	0020	0022.3	1	11.6	5.8		
	5730	IRKU	2 S	0336	0338	6	36	8		
	2695	MANI	3 S	0336.9	0338.2	3.6	27.2	13.6		
	1415	MANI	3 S	0338	0338.5	1.5	8.1	3		
	2950	GORK	20 GRF	0532 U	0551	41.3	25			
	6100	KISV	20 RF	0635	0637.3	55	4			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	9100	GORK	20	GRF	0649.5	0653.2	42.9	9	3		
	113	POTS	42	SER	0724.4	0737.3	13	315	1		
	930	BORD	46	C	0844	0844.5	1	30	4		
	6100	KISV	1	S	0930	0932.3	5	2			
	930	BORD	46	C	0932	0932.5	1.3	54	4		
	127	TORN	40	F	0939.7	0941.2	3.5	30			
	930	BORD	46	C	1020.7	1024.7	.2	11	2		
	33	UPIC	8	S	1038.1	1038.1	.4				
	29	UPIC	8	S	1038.3	1038.5	.3				
	808	ONDR	42	SER	1119	1133.4	90	140			
	930	BORD	46	C	1109	1109.5	2	194	3		
	6100	KISV	8	S	1120.3	1120.5	1	4			
	9100	GORK	1	S	1133.5	1133.8	1.3	4.5	2		
	930	BORD	46	C	1153	1133	.5	263	4		
	9100	GORK	1	S	1139.4	1139.8	1.6	4.5	2		
	930	BORD	45	C	1224.6	1224.6	.3	145	2		
	9100	GORK	1	S	1225	1225.3	1	10	5		
	536	ONDR	3	S	1225.3	1225.3	.2	15			
	260	ONDR	8	S	1225.5	1225.5	.2	27			
	7000	SAOP	45	C	1215	1239.9	6	10.5			C
	930	BORD	46	C	1237.8	1238.2	2.4	232	3		
	930	BORD	8	S	1332.5	1332.5	.1	21	1		
	2800	OTTA	1	S	1334	1336	9	3.6	1.2		
	2800	OTTA	8	S	1605.2	1605.4	.3	5.4	2.7		
	930	BORD	41	F	1605.3	1605.3	1.4	32	2		
	2800	OTTA	20	GRF	1730	1745	55	2.4	1.6		
	9400	HUAN	20	GRF	1829.2	1934.8	65.6	17	9		L
	2800	OTTA	1	S	2015	2016.5	10	1.6	.8		
	2800	OTTA	40	F	2125.8	2126	5	21			
	2695	BOUL	3	S	2126 E	2126.5	1 D	17	6		
	2695	PENT	8	S	2347	2347.2	.5	2.2	1.1		
3	200	GORK	4	SF	0555.8	0556.3	1.6	20			
	100	GORK	4	SF	0556	0557.3	1	8			
	6100	KISV	8	S	0653.3	0653.4	2	2			
	3100	CRIM			0701	0701.5	1	2	.5		
	3100	CRIM	25		0818	1000		7			
	260	ONDR	46	C	0820	0824.7	10	13	2.1		
	6100	KISV	8	S	0945	0950.3	7	4			
	3100	CRIM			0950	0950	1	7	2		
	6100	KISV	46	C	1102	1103	3	2			
	260	ONDR	8	S	1157.6	1157.6	.2	18			
	260	ONDR	8	S	1212.6	1212.6	.2	29			
	2800	OTTA	1	S	1712	1715.5	8	2.8	1		
	9400	HUAN	21	GRF	1754	1911.5	77.5	13.4	8.9		C
	4995	BOUL	3	S	1814	1822.5	11.5	24	8		
	2800	OTTA	21	GRF	1808	1820	95	7.2	3.4		
	2695	SGMR	3	S	1811.4	1823.1	16.6	22.9	6.9		
	4995	SGMR	3	S	1813.5	1822.5	14.5	21.3	6.4		
	8800	SGMR	3	S	1814.9	1822.7	13.1	19	5.7		
	606	SGMR	1	S	1815	1816.9	3	1.3	0.4		
	1415	SGMR	1	S	1815.2	1817.9	4.9	4.5	1.4		
	410	SGMR	6	S	1816	1816.9	2	6.4	1.9		
	245	SGMR	6	S	1816.1	1816.8	1.8	9	2.7		
	15400	SGMR	3	S	1817	1822.9	14.2	17.9	5.4		
	7000	SAOP	20	GRF	1817.2	1823	14.6	16.5			C
	9400	HUAN	2	S/F	1821.7	1825.3	3.6	15.1	9.3		L
	2800	OTTA	3	S	1821	1822.8	5	10.8	5.4		
	2695	PENT	20	GRF	2000	2015.3	60	3	1.3		
	2695	PENT	240	R	2210	2255	45	4	2		
4	260	ONDR	45	C	1028.7	1030.5	3	34	11		
	536	ONDR	2	S/F	1028.8	1029.3	1	17			
	228	HARS	45	C	1029	1030.5	2.5	90	35		
	930	BORD	45	C	1032.8	1032.9	.2	15	2		
	260	ONDR	42	SER	1142	1159.5	51	27			
	536	ONDR	3	S	1233.5	1233.5	.2	15			
	2800	OTTA	20	GRF	1510	1535	60	3.6	2		
	2800	OTTA	1	S	2209	2210	3	7.8	3		
	2695	PENT	8	S	2247.9	2248	.5	2.4	1		
5	200	HIRA	42	SER	0028	0028	12	45	15		WL
	100	HIRA	42	SER	0028	0028.5	10	200	50		SL
	260	ONDR	43	NS	1218	1224.3	172 D	15			
	2800	OTTA	21	GRF	1355	1444	485	26	12		
	1470	BERL	20	GRF	1421	1441	59	13			
	3000	BERL	20	GRF	1426	1443.5	54	31			
	1415	SGMR	20	GRF	1427.5	1443.2	46.5	9.2	3.7		SWF
	4995	SGMR	20	GRF	1429	1433.1	39	10.8	4.3		SWF
	2695	SGMR	20	GRF	1429	1444	39	16.8	6.7		SWF
	8800	SGMR	20	GRF	1429	1432	39	8.6	3.4		SWF
	9500	BERL	20	GRF	1429	1435	51	15			
	9400	HUAN	20	GRF	1410.2	1517.6E	67.4	22.8	15.8		R
	7000	SAOP	40	F	1420						
	606	SGMR	3	S	1421.7	1423.8	22.3	85.5	34.2		SWF

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	410	SGMR	6 S	1421.9	1422.3	22.1	12.7	5.1		SWF
	536	ONDR	46 C	1421	1423.9	7	34	13		
	2800	OTTA	20 GRF	1520	1526	40	5.8	2.9		
	930	BORD	41 F	1531	1531.4	.4	19	2		
	9400	HUAN	20 GRF	1934	2023.8	49.8	13.4	8		R
	200	HIRA	44 NS	2100 E	0150	705 D	60	10		ML
6	2695	PENT	8 S	0013.3	0013.7	.7	3.4	1.7		
	2930	VORO	45 C	0250	0257	15	237			
	200	GORK	44 NS	0433 E		387 D		5		
	221	ABST	44 NS	0600	0749.2	180	8			
	202	IZMI	43 NS	0700		360	30			
	260	ONDR	44 NS	0723 E		459 D	27			
	245	SGMR	44 NS	1118 E	1428.8	462 D	18.2			CONT
	6100	KISV	20 GRF	0851	0852	14	2			
	808	ONDR	46 C	1419	1420.7	11	121	53		
	930	BORD	45 C	1419	1419.8	13	208	25		
	7000	SAOP	40 F	1431						
	536	ONDR	41 F	1433.5	1436.5	3	13			
	2800	OTTA	20 GRF	1440	1450	65 D	3.2			
	2800	OTTA	20 GRF	1720	1838	200	8.4	4.8		CONT
	2800	OTTA	21 GRF	2140	2209	95	7	3.5		
	2800	OTTA	2 S/F	2206.3	2207.5	1.8	5.8	4.4		
7	6100	KISV	27 RF	0635	0642	60	3			
	260	ONDR	42 SER	1222	1437.1	155	27			
	2800	OTTA	240 R	1300	1303	3	3.8	1.9		
	2695	SGMR	1 S	1339.3	1339.4	1.1	1 U	0.3U		
	4995	SGMR	1 S	1339.6	1339.9	.6	9.6	2.9		
	7000	SAOP	40 F	1505						
	2800	OTTA	20 GRF	1528	1531	14	3.2	1		
	2800	OTTA	20 GRF	1552	1610	33	2.8	1.4		
	2800	OTTA	20 GRF	1635	1710	125	5.2	2.6		
8	200	GORK	43 NS	0530 E		522 D		5		
	127	TORN	44 NS	0730 E	0936.6	450 D	220	3		V1
	113	POTS	8 S	0730.8	0730.8	.1	120	40		
	221	ABST	45 C	0748	0751.5	10	17	8		
	260	ONDR	46 C	0752.5	0757	16	38	6		
	113	POTS	6 S	0757.8	0757.9	.3	250	80		
	9500	BERL	1 S	1014	1015	2.5	5			
	6100	KISV	1 S	1014.3	1015	3	2			
	1470	BERL	4 S/F	1014.5	1014.6	1	5			
	6100	KISV	1 S	1100.3	1101.3	6	2			
	260	ONDR	4 S/F	1100	1101.3	4.5	29	5		
	1470	BERL	1 S	1101	1101.3	1	4			
	3000	BERL	3 S	1101	1101.4	1	7.9			
	6100	KISV	1 S	1136.7	1139	4	2			
	260	ONDR	2 S/F	1144.6	1144.8	1	7			
	7000	SAOP	40 F	1300	1328.5		11			45R
	2800	OTTA	21 GRF	1515	1530	40	2.8	1.4		
	2800	OTTA	1 S	1524.5	1525.5	3	1.6	.8		
	1420	BOUL	3 S	2137.5E	2138	1 D	12	4		
9	700	SYDN	45 C	0157.8	0157.9	.6	22			
	9100	GORK	20 GRF	0659.2	0712	29.9	6.5	2.5		
	6100	KISV	2 S/F	0905	0906.2	3	2			
	260	ONDR	43 NS	0912	1105.8	287	18			
	92500	BERN	46 C	0940.4	1024.8	180	28 U			
	10400	BERN	46 C	0940.4	1024.8	180	366 D			
	8400	BERN	46 C	0940.4	1024.8	180	325 D			
	10400	BERN	46	0940.4	1024.8	180	1360 D			
	92500	BERN	46	0940.4	1024.8	180	370 U			
	8400	BERN	46	0940.4	1024.8	180	808 D			
	6100	KISV	2 S/F	0943	0947.5	7	4			
	3100	CRIM	28 PR	0945	1017	32	5			
	930	BORD	45 C	0957	1059.4	74	884	75		
	950	GORK	28 PRE	1009	1013.2	53	10			
	650	GORK	28 PRE	1009	1014.3	7.4	3.2	1.5		
	808	ONDR		1012	1022.3		394			
	808	ONDR	46 C	1012	1059.6	54	566	166		
	650	GORK	48 C	1016.7	1022.8	49.7	1150			
	650	GORK		1016.7	1103.4		290			
	650	GORK		1016.7	1100		410			
	650	GORK	30 PBI	1016.7	1106.4	35.6E	6.5			
	9500	BERL	49 GB	1017	1024.9	103	1140			
	3100	CRIM	47 B	1017	1035.5	56	412	100		
	3100	CRIM	29 PB	1017	1113	47	15			
	3100	CRIM		1017	1051.5		403			
	4995	ATHN	15 CGB	1017.2	1051		718.6	215.6		
	4995	ATHN	15 CGB	1017.2	1024.8	61.8	909	272.4		
	8800	ATHN	15 CGB	1017.5	1024.8	62.5	2908.3	872.5		
	3000	BERL	49 GB	1017.5	1052	82	525 U			
	2950	GORK		1017.6	1051.4		490 D			
	2950	GORK		1017.6	1034.6		500 D			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
	2950	GORK			1017.6	1030.3		476			
	2950	GORK	47	GB	1017.6	1021.9	72 E	450			
	9100	GORK	48	C	1017.9	1025.7	72	1545 E			
	9100	GORK			1017.9	1051.9		642			
	9100	GORK			1017.9	1035.1		527			
	9100	GORK			1017.9	1030.2		773			
	9100	GORK			1017.9	1028.8		986			
	6100	KISV	47	GB	1017	1025	98	312			
	6100	KISV			1017	1029.5		251			
	6100	KISV			1017	1028.3		262			
	6100	KISV			1017	1022.5		262			
	6100	KISV			1017	1022.1		266			
	6100	KISV			1017	1050.4		69			
	6100	KISV			1017	1034.4		215			
	950	GORK	48	C	1018	1022.8	50	140			
	950	GORK			1018	1103.4		58			
	950	GORK			1018	1100		190 D			
	10715	DWIN	47	GB	1018		60	270 D			
	1415	ATHN	14	C	1019.8	1051.2	58.6	345.9	103.8		
	2695	ATHN	15	CGB	1019.8	1051.2	62.7	715.6	214.7		
	1470	BERL	49	GB	1020.5	1054.4	60	235			
	536	ONDR	49	GB	1020	1022.3	50	328	65		
	536	ONDR			1020	1103.2		124			
	2650	DWIN	47	GB	1020		70	140 D			
	15000	KISV	47	GB	1020	1024.4	55	932			
	15000	KISV			1020	1028.3		360			
	15000	KISV			1020	1023		682			
	15000	KISV			1020	1051.3		334			
	15000	KISV			1020	1029.5		199			
	228	HARS	48	C	1021	1025	25	40	15		
	127	TORN	45	C	1021.3	1023.1	30 U	250	9		
	200	GORK			1021.4	1023.2		25 D			
	200	GORK	46	C	1021.4	1022	32	25			
	200	GORK			1021.4	1035.1		55			
	200	GORK			1021.4	1025		150			
	200	GORK			1021.4	1024.5		190			
	260	ONDR	48	C	1021.5	1023.2	18.5	138	51		
	33	UPIC	42	SER	1021.5	1023.2	43.5				
	202	IZMI	25	R	1021.5	1023	15.5	255	53		
	29	UPIC	42	SER	1021.6	1023.4	43.8				
	100	GORK			1021.7	1041.2		180 D			
	100	GORK			1021.7	1025		620			
	100	GORK	46	C	1021.7	1023.4	34	170 D			
	234	POTS	47	GB	1021	1031.6	29	70			
	113	POTS	47	GB	1021	1025	34	56			
	202	IZMI	41	F	1102.5	1106	4	55			
	113	POTS	41	F	1102.6	1102.8	4.2	2800	50		
	100	GORK			1102.9	1104.5		750			
	100	GORK	45	C	1102.9	1103.3	5	230 D			
	200	GORK			1103	1106.3		135			
	200	GORK	41	F	1103	1103.4	5.7	95			
	650	GORK	1	S	1123.1	1123.4	.9	5			
	1470	BERL	46	C	1156.5	1237	18	51			
	536	ONDR	46	C	1156.5	1202.7	18	28	16		
	808	ONDR	46	C	1156	1202.8	17	86	49		
	930	BORD	45	C	1156	1203	18	94	31		
	3000	BERL	20	GRF	1201	1211.5	15	7			
	7000	SAOP	45	C	1300						
	7000	SAOP	40	F	1410						
	2800	OTTA	21	GRF	1440	1444	30	1.6	.8		
	2800	OTTA	1	S	1442.7	1443	1	3.6	1.8		
	2650	DWIN	8	S	1612			90	60		
	7000	SAOP	40	F	1640						
	2800	OTTA	240	R	1840	1847	7	3	1.5		
	2800	OTTA	20	GRF	2035	2100	35	1.6	.8		
	2800	OTTA	21	GRF	2135	2157	55	3.4	1.7		
	2800	OTTA	1	S	2146.5	2149	4	2.8	2.1		
10	221	ABST	7	S	0631	0631.5	1	17	6		
	260	ONDR	2	S/F	1056.6	1057.3	1.5	6			
	234	POTS	41	F	1159.6	1159.8	1.2	200	7		
	113	POTS	41	F	1159.7	1159.9	1	100	7		
	260	ONDR	4	S/F	1159	1200	1.5	125	5		
	260	ONDR	3	S	1255.2	1255.2	.2	8			
	2800	OTTA	1	S	1351	1352	1.5	2.4	1.2		
	260	ONDR	6	S	1518.8	1518.8	.2	22			
	2800	OTTA	20	GRF	1520	1645	125	2	1		
	1420	BOUL	3	S	1644 E	1644.5	1 D	12	4		
	2800	OTTA	20	GRF	1750	1810	50	2.4	1.4		
	2800	OTTA	1	S	2200	2200.3	2	2.6	1.4		
	2800	OTTA	1	S	2236	2236.2	2	2	1		
11	606	MANI	1	S	0520.2	0520.6	.9	6.7	2.2		
	1415	MANI	1	S	0520.3	0521.3	1.7	4.8	1.6		
	2695	MANI	1	S	0520.3	0521.7	1.1	5.1	1.7		IG

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	200	GORK		0524.4	0527.4		130 D			
	200	GORK	45 C	0524.4	0524 U	6	30 D			
	4995	ATHN	3 S	0524.7	0526.1	2.8	21.2	6.3		
	2695	ATHN	3 S	0525	0526	2.1	33.9	10.2		
	200	HIRA	46 C	0525	0526	3	530	100		WL
	100	HIRA	46 C	0525	0525.8	4	15000	5000		C
	100	GORK		0525.5	0527.4		320			
	100	GORK	45 C	0525.5	0526 U	4.5	90 D			
	8800	ATHN	2 GRF	0525.6	0526.1	1.8	6.4	3.8		
	650	GORK	1 S	0525.7	0525.8	.6	11.5			
	9100	GORK	1 S	0525.9	0526	1.1	10.5	5		
	3100	CRIM	3	0526	0526.5	1	26	9		
	6100	KISV		0645	0657		2			
	6100	KISV	21 GRF	0645	0725	120	9			
	6100	KISV		0645	0709.3		8			
	6100	KISV		0645	0737.3		6			
	3100	CRIM	41	0653	0657	10	7	2		
	113	POTS	46 C	0657.6	0658.8	4.4	200	25		
	3100	CRIM		0716	0710		5	2		
	3100	CRIM	45 C	0706	0708	5	3	1		
	9100	GORK	20 GRF	0717.2	0726	26	10	3.5		
	260	ONDR	42 SER	0753	0838.6	46	15			
	3100	CRIM	1	0957	1000.1	4	3	1		
	6100	KISV	20 GRF	1025	1106.2	80	6			
	650	GORK	20 GRF	1030.3	1038.1	16.7	6	3		
	950	GORK		1033.3	1040.4		21			
	950	GORK	45 C	1033.9	1037.7	10	31			
	3100	CRIM	1	1034	1038	10	18	6		
	3100	CRIM	29 PB	1034	1044	70	6			
	2695	ATHN	2 GRF	1034 U	1038	10.6U	22.8	13.7U		
	808	ONDR	45 C	1034	1037.6	11	28	16		
	930	BORD	3 S	1034	1037.8	10	27	14		
	1415	ATHN	2 GRF	1035 U	1038	8.7U	36	21.6U		
	2950	GORK	3 S	1035.2	1038.1	9.3	23	10		
	33	UPIC	46 C	1035.7	1040.5	6.8				
	2650	OWIN	4 SF	1035	1038	10	30	20		
	4995	ATHN	3 S	1036 U	1038.8	5.8U	6.9	2.1U		
	29	UPIC	46 C	1036.2	1040.9	6.8				
	9100	GORK	20 GRF	1036.6	1054.8	55	14	5		
	260	ONDR	42 SER	1036	1041.2	20	9			
	127	TORN	40 F	1036	1045.9	18 U	5.2			
	1470	BERL	3 S	1037	1037.5	7	21 U			
	3000	BERL	3 S	1040 E	1041	6 D	18 U			
	1415	ATHN	2 GRF	1546.6	1552.8	16.4	14.4	5.6		
	4995	ATHN	2 GRF	1548.4	1559.7	19.6	18.3	11		
	2695	ATHN	2 GRF	1552.1	1600.7	11.8	22.6	13.7		
	2800	OTTA	22 GRF	1552	1603	350	15	7.5		
	4995	BOUL	20 GRF	1555.5	1612	70	17	6		
	9400	HUAN	20 GRF	1557.7	1650.5	52.8	9.6	5.5		G
	2695	BOUL	20 GRF	1559 E	1619	55 D	16	5		
12	202	IZMI	41 F	0754.3	0754.3	2.7	100			
	260	ONDR	42 SER	0958	1051.6	150	28			
	113	POTS	41 F	1051	1051.5	.4	3500	300		
	202	IZMI	4 S/F	1051	1051.5	.6	225	60		
	100	GORK	8 S	1051.1	1051.6	.9	210			
	33	UPIC	4 S/F	1051.2	1051.4	.5				
	29	UPIC	4 S/F	1051.2	1051.5	.7				
	2695	PENT	23 GRF	2150	2220	120	3.4			
	2800	OTTA	4 S/F	2211	2212	2	11.2	3.7		
13	260	ONDR	42 SER	1026	1045.2	34	33			
	3100	CRIM	5	1053	1101	31	8	3		
	9400	HUAN	21 GRF	1330	1449.3	109.3	23.5	8.1		R
	8400	BERN	23 GRF	1321.6	1327.2	32	8			
	10400	BERN	23 GRF	1321.6	1327.2	32	4			
	8400	BERN	23	1321.6	1327.2	32	21			OPR
	10400	BERN	23	1321.6	1327.2	32	11			OPR
	8800	SGMR	3 S	1322.8	1330.7	13.2	22.4	9		SWF
	7000	SAOP	45 C	1323.5	1327.2	17.4	27			41L
	2695	SGMR	3 S	1323.7	1330.7	12.3	24.8	9.9		SWF
	4995	SGMR	3 S	1323.3	1330.3	12.2	30.4	12.2		SWF
	1415	SGMR	3 S	1324.8	1330.4	11.2	15.7	6.3		SWF
	2695	ATHN	2 GRF	1324.8	1326.9	9.3	18.5	11.1		
	4995	ATHN	2 GRF	1324.9	1326.9	9.2	26.3	15.8		
	2800	OTTA	45 C	1324	1330.5	11	16.6	8.3		
	8800	ATHN	2 GRF	1325	1326.8	8.8	21.6	13		
	808	ONDR	46 C	1325.5	1327.3	8.5	49	8.5		
	9400	HUAN	2 S/F	1325.7	1328.8	3.1	15.1	9.2		G
	1470	BERL	22 GRF	1325	1330.5	11	13			
	3000	BERL	22 GRF	1325	1327	10	21			
	9500	BERL	22 GRF	1325	1326.8	31	14			
	2650	OWIN	4 SF	1325	1330	10	15	5		
	930	BORD	41 F	1325	1327.1	9	38	5		
	606	SGMR	3 S	1326	1330.4	9.8	62.9	25.2		SWF

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
	536	ONDR	46	C	1326	1330.5	10	24	6.5		
	2800	OTTA	8	S	1429.9	1429.9	.1	4			
	2800	OTTA	8	S	1438.3	1438.4	.7	3.2	2.8		
	9400	HUAN	1	S	1622	1623.4	1.4	11.8	7.1		RLR
	2800	OTTA	20	GRF	1700	1720	65	3.2	2.1		
	2695	PENT	240	R	2000	2015	15	2.6	1.3		
	2800	OTTA	21	GRF	2120	2127	30	2.2	1.8		
	2800	OTTA	8	S	2145.1	2145.5	.8	2.8	1.4		
	2695	PENT	21	GRF	2205	2212	40	2.6	1.3		
	2800	OTTA	1	S	2212.5	2213.1	1	3.4	1.7		
14	3100	CRIM	20		0939	1046	245	9	3		
	260	ONDR	43	NS	1038		268 D	34			
	2800	OTTA	21	GRF	1332	1338	31	4.2	2.1		
	2800	OTTA	1	S	1334.5	1336	3	5	2.5		
	113	POTS	4	S/F	1422.1	1422.3	.5	125	20		
	9400	HUAN	1	S	1705	1707	2	12.8	4.6		L
	2800	OTTA	8	S	1748.1	1748.1	.3	4.2			
	2800	OTTA	20	GRF	2110	2148	70	2.2	1.4		
15	200	GORK	43	NS	0457		480		5		
	221	ABST	44	NS	0700	0841.5	120	9			
	260	ONDR	44	NS	0734 E		444 D	27			
	127	TORN	44	NS	0820 E	1153.6	400 D	7.6	2		VG
	245	SGMR	44	NS	1101 E	1110.1	479 D	43.6			S
	3100	CRIM	20		0728 E	0748	169	20	7		
	15000	KISV	20	GRF	0730	0750	60	18			
	6100	KISV	20	GRF	0730	0750	170	11			
	9100	GORK	20	GRF	0734.9	0756.4	63.1	18.5	6		
	2800	OTTA	20	GRF	1310	1330	35	3	1.5		
	9400	HUAN	20	GRF	1311.4	1406.3	54.9	5	1.9		L
	2800	OTTA	20	GRF	1430	1445	30 D	3			
16	700	SYDN	4	S	0027	0028.5	5.1	72			
	500	HIRA	46	C	0027.1	0028	3	100	40		MR
	200	HIRA	46	C	0027.5	0028	2.5	45000	1000		WL
	1415	MANI	4	S/F	0027.5	0028.4	5	26.9	8.1		
	1420	BOUL	4	SF	0027.5E	0028	2.50	31	10		
	606	MANI	4	S/F	0027.8	0028.6	3.5	27.8	9.3		
	2695	PENT	4	S/F	0027.8	0028.5	1.2	23	10		
	2695	MANI	4	S/F	0027.8	0028.6	2.2	21.7	7.2		I
	4995	BOUL	4	SF	0027	0028	3.5	36	12		
	100	HIRA	46	C	0028	0028.2	4	50000	5000		WL
	1415	SYDN	45	C	0028	0028.3	1.7	35			
	2695	BOUL	3	S	0028 E	0029	2.50	23	8		
	100	HIRA	46	C	0325.8	0326	2	500	100		WR
	200	HIRA	46	C	0326	0326.5	3	200	70		WR
	200	GORK	44	NS	0436 E		500 E		5		
	260	ONDR	44	NS	0734 E		441 D	34	3		
	245	SGMR	44	NS	1100 E	1444.9	480 D	91			S
	410	SGMR	44	NS	1100 E	1548.8	480 D	28.9			S
	100	GORK	4	SF	0446.3	0451.2	3	80 D			
	200	GORK	4	SF	0451.2	0452 U	1.9	20 D			
	650	GORK			0523	0535.3	22	180			
	650	GORK			0523	0536.6		180			
	700	SYDN	45	C	0523	0534.5	18	100			
	950	GORK	45	C	0524	0533.5		34			
	950	GORK			0524	0527		48			
	950	GORK	45	C	0524	0526.4U	14	60 D			
	606	MANI	4	S/F	0524.9	0536.7	16.9	124	47.7		
	500	HIRA	45	C	0532	0536.6	10	30	14		ML
	200	GORK	8	S	0734.7	0735	.8	18			
	3100	CRIM	20		0751	0952	189	20	7		
	6100	KISV	27	RF	0800	0900	180	6			
	100	GORK			0915.2	0916.8		135			
	100	GORK	45	C	0915.2	0916	2.6	170			
	100	GORK	8	S	1025.6	1025.9	.7	230			
	9400	HUAN	3	S	1127.7	1129.1	1.4	22.5	9.3		L
	29	UPIC	45	C	1150.4	1151.1	2.7				
	127	TORN	45	C	1150.4	1151	2.2	270	14		
	33	UPIC	45	C	1150.5	1151	2.3				
	113	POTS	4	S/F	1150.5	1151.1	1	630	40		
	202	IZMI	7	C	1150.5	1151	1.3	100	50		
	228	HARS	1	S	1150.5	1150.8	.5	68	19		
	234	POTS	4	S/F	1150.7	1151.2	.8	120	25		
	200	GORK	3	S	1150.8	1151 U	1.5	30 D			
	100	GORK	3	S	1150.8	1151 U	2.2	200 D			
	33	UPIC	45	C	1354.1	1354.4	2.1				
	29	UPIC	45	C	1354.1	1354.5	1.9				
	113	POTS	41	F	1355.5	1355.6	.4	100	10		
	4995	SGMR	20	GRF	1418.5	1433.3	36.5	19.9	8		SWF
	7000	SAOP	40	F	1420						
	9400	HUAN	20	GRF	1420.3	1603.7	103.4	13.9	6.1		C
	2695	SGMR	20	GRF	1420.3	1425.6	34.7	21.6	8.6		SWF
	2800	OTTA	21	GRF	1420	1445	275	12.4	6		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	1415	SGMR	20 GRF	1422.1	1425.6	32.9	6.7	2.7		SWF
	8400	BERN	20	1422.3	1426.8	40	18			OPR
	8400	BERN	20 GRF	1422.3	1426.8	40	7			
	4995	BOUL	20 GRF	1422.5	1431.5	17	20	7		
	9500	BERL	20 GRF	1422	1427.5	20	12			
	8800	ATHN	2 GRF	1423.2	1426.7	14	18.3	11		
	8800	SGMR	20 GRF	1423.7	1431.7	21.3	25.2	10.1		SWF
	2695	ATHN	3 S	1424	1424.9	10.4	19.8	5.9		
	15400	SGMR	20 GRF	1424	1434	16	14.2	5.7		SWF
	4995	ATHN	2 GRF	1424.4	1427.3	22.1	16.3	9.8		
	1470	BERL	4 S/F	1424.5	1425.5	3.5	7.9			
	3000	BERL	4 S/F	1424.5	1425	4.5	17			
	2650	DWIN	4 SF	1424	1425	5	20	10		
	2800	OTTA	4 S/F	1424	1424.6	4	15.8	5.2		
	228	HARS	45 C	1616.5	1619.5	3.5	106	37		
	2800	OTTA	20 GRF	2030	2035	80	5	2.5		
17	221	ABST	44 NS	0630	0823	180	14			
	260	ONDR	44 NS	0753 E		431 D	67	3		
	245	SGMR	43 NS	1321	1711.5	359 D	74			
	202	IZMI	6 S	0723.5	0724	1	80	35		
	2800	OTTA	20 GRF	1530	1535	30	3.8	2.5		
	2800	OTTA	20 GRF	1730	1806	70	3.8	1.5		
	2695	PENT	20 GRF	2150	2210	70	3.2	1.6		
18	200	HIRA	43 NS	0130	0350	470 D	10	5		MR
	100	GORK	43 NS	0500		420		5		
	221	ABST	44 NS	0600	0803.2	180	9			
	200	GORK	44 NS	0633 E		510 E		5		
	202	IZMI	43 NS	0700		360	35			
	260	ONDR	44 NS	0710 E		463 D	25	2		
	127	TORN	44 NS	0720 E	0934	460 D	10	1		VO
	245	SGMR	44 NS	1057 E	1250.1	483 D	55.2			
	410	SGMR	44 NS	1057 E	1143.5	483 D	16.2			
	536	ONDR	4 S/F	0618	0620	3	24	5.6		
	3100	CRIM	24	0836	0956		8			
	9400	HUAN	21 GRF	1413.7	1542	88.3	15	6.4		R
	4995	BOUL	21 GRF	1417.5	1423.5	82	32	11		
	4995	SGMR	3 S	1418.3	1421.3	11.9	43.6	17		SWF
	2800	OTTA	4 S/F	1418.5	1424	13	20.4	10.2		
	2695	SGMR	3 S	1418.8	1423.9	12.2	29.9	12		SWF
	2695	ATHN	1 F	1418.8	1422	12.2	21.6	10.8		
	3000	BERL	23 PBI	1418.8	1424.5	37 D	27			
	2800	OTTA	21 GRF	1418	1445	210 D	12			
	4995	ATHN	1 F	1419	1421.5	10.9	32.6	16.3		
	1415	SGMR	20 GRF	1419.1	1424.8	10.4	7.2	2.9		SWF
	8800	ATHN	1 F	1419.5	1422	10.4	26.6	13.3		
	8800	SGMR	3 S	1419.5	1424.4	12.5	24.1	9.6		SWF
	9500	BERL	20 GRF	1419	1423.4	36 D	20			
	1470	BERL	20 GRF	1419	1425.5	36 D	7.9			
	9400	HUAN	1 S	1423	1425.2	2.2	10	4.8		R
	2800	OTTA	23 GRF	1755	1805	80	4.4	2.8		
	2800	OTTA	2 S/F	1756	1757.7	3	5.6	2.4		
	1420	BOUL	3 S	1757.5E	1758	1.50	5	1		
	2800	OTTA	26 FAL	2120	2140	20	-4.4	-2.2		
19	200	GORK	44 NS	0430 E		510 E		5		
	260	ONDR	44 NS	0730 E		450 D	27			
	245	SGMR	44 NS	1054 E	1214.2	486 D	45.1			
	410	SGMR	44 NS	1054 E	1419.9	486 D	24.4			
	228	HARS	45 C	0944	0944.2	.5	50	12		
	9100	GORK	20 GRF	0955.7	1032	15.7	6	2		
	2800	OTTA	20 GRF	1230	1250	40	3.8	2.2		
	2800	OTTA	240 R	1430	1447	17	2.4	1.2		
	930	BORD	41 F	1443.3	1443.4	.2	24	2		
	930	BORD	41 F	1501.6	1501.7	.2	16	3		
	7000	SAOP	20 GRF	1611		18	31.5			D
	7000	SAOP		1654	1659	19	389			29R
	7000	SAOP		1654	1656.8	19	389			26R
	7000	SAOP	46 C	1654						
	10400	BERN	46 C	1654	1656.8	16 D	80			
	8400	BERN	46 C	1654	1656.8	16 D	86			
	8400	BERN	46	1654	1656.8	16 D	228			18R
	10400	BERN	46	1654	1656.8	16 D	242			
	1420	BOUL	45 C	1654.5E	1657	6 D	204	68 U		
	605	SGMR	3 S	1654.5	1657.6	17.5	75.3	23		SWF
	1415	SGMR	3 S	1654.5	1656.7	13	211.2	53		SWF
	410	SGMR	6 S	1654.9	1655.5	14.1	144	44		SWF
	4995	BOUL	28 PRE	1654	1657	4	69	23 U		
	2695	BOUL	45 C	1654	1653	10	235	79 U		
	2800	OTTA	46F C	1654	1657	14	220	73		
	930	BORD	45 C	1654	1656	14	124	35		
	228	HARS	45 C	1655	1655	.5	60	22		
	245	SGMR	6 S	1655.4	1655.7	15.4	25.5	7.8		SWF
	4995	BOUL	4 SF	1658	1659.5	4	234	78 U		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
	2695	BOUL	4	SF	1659	1700	2 U	227	76 U		
	1420	BOUL	29	PBI	1700.5	1700.5	5.5	41	14 U		
	2800	OTTA	30	PBI	1728	1728	220	15.8			
	2800	OTTA	21	GRF	1834	1955	125	5	2.5		
	2800	OTTA	1	S	1835.9	1836	1	7	3.5		
	2800	OTTA	21	GRF	2100	2105	70	3.2	2.7		
	2800	OTTA	1	S	2109.4	2110.7	2.5	4.4	2.2		
	2695	PENT	26	FAL	2330	2405	35	-5.6	-2.8		
20	200	HIRA	43	NS	0330	0510	325 D	8	2		SR
	221	AUST	44	NS	0630	0725.8	180	9			
	202	IZMI	43	NS	0700		360	20			
	260	ONDR	44	NS	0727 E		459 D	34	2		
	245	SGMR	44	NS	1053 E	1124.1	487 D	9.2			
	410	SGMR	44	NS	1053 E	1113.2	487 D	5.2			
	6100	KISV	4	S/F	0614	0615.3	3	10			
	5730	IRKU	1	S	0615	0615.8	4	13	3		
	930	BORO	45	C	1018.8	1018.8	.2	15	2		
	950	GORK	1	S	1056.1	1057	1.6	5			
	2950	GORK	1	S	1056.3	1057	1.2	6.4	3.2		
	3100	CRIM	25		1143	1240.5	177	26			
	228	HARS	45	C	1208	1208.5	1	110	40		
	228	HARS	45	C	1209.5	1209.8	.7	65	30		
	228	HARS	1	S	1211	1211.2	.5	70	30		
	9500	BERL	20	GRF	1215	1300	115	18			
	3000	BERL	20	GRF	1216	1240.3	164 D	28			
	1470	BERL	20	GRF	1217	1240	163 D	8.1			
	2800	OTTA	27A	RF	1225		235	4	3.7		
	2800	OTTA	24	R	1225	1230	5	4	2		
	9400	HUAN	20	GRF	1229	1431.6	122.6	26.7	7.8		R
	2800	OTTA	24P	R	1230		250	4			
	2800	OTTA	23	GRF	1231	1237	65	5.4	2.7		
	2695	SGMR	20	GRF	1233.6	1235.2	26.4	11.6	5.8		
	8800	SGMR	20	GRF	1234.2	1255.6	25.8	15.1	7.5		
	4995	SGMR	20	GRF	1234.7	1255.3	25.3	12.6	6.3		
	4995	ATHN	2	GRF	1234.7	1240.4	44.8	11.2	6.7		
	1415	ATHN	2	GRF	1234.8	1243	14	8.8	5.3		
	2695	ATHN	2	GRF	1235.2	1240.1	12	9.9	6		
	8800	ATHN	2	GRF	1237	1245.7	42.5	22.3	13.4		
	1415	SGMR	20	GRF	1239.7	1256.9	20.3	8.8	4.4		
	2800	OTTA	1	S	1239.8	1240.4	1.5	5.4	2.7		
	7000	SAOP	40	F	1600						
	9400	HUAN	20	GRF	1609.5	1645.7	36.2	7.8	5		R
	2800	OTTA	26	FAL	1640	1710	30	-4	-2		
	2800	OTTA	1	S	1932	1932.8	1	1.8			
	2800	OTTA	1	S	2030.1	2030.5	1.5	2.4	1.4		
	2800	OTTA	240	AR	2030	2031.8	1.8	2.4			
	4995	BOUL	4	SF	2307.5	2309.5	4.5	31	10		
	2695	PENT	4	S/F	2308.5	2310	7	49	13		
	8800	MANI	4	S/F	2308.5	2310.2	3.4	99.2	33.1		
	2695	MANI	4	S/F	2308.5	2310.2	5.2	47.7	15.9		
	1415	MANI	4	S/F	2308.8	2310.2	5.4	31.3	10.4		
	606	MANI	4	S/F	2309	2309.8	3	22.6	7.5		
	500	HIRA	46	C	2309.1	2309.7	3	77	44		ML
	1415	SYDN	45	C	2309.1	2309.4	4.6	30			
	700	SYDN	45	C	2309.1	2309.9	3.3	35			
	1420	BOUL	4	SF	2309 E	2309.5	5 D	48	16		
21	700	SYDN	4	S	0112.5	0112.7	.5	42			
	5730	IRKU	22	GRF	0223	0225	6	9	6		
	1415	MANI	4	S/F	0244	0245.7	10	82.4	27.5		
	8800	MANI	4	S/F	0244.3	0245.3	5.9	135.1	46		
	2695	MANI	4	S/F	0244.5	0245.3	8.6	133.4	44		
	606	MANI	4	S/F	0244.5	0244.9	4.8	86.9	28.9		
	200	HIRA	46	C	0244.5	0245	1.5	1510	300		C
	1415	SYDN	4	S	0244.6	0245.8	11	81			
	700	SYDN	4	S	0244.9	0245.9	5.4	220			
	5730	IRKU	2	S	0244.8	0245.5	6	79	17		
	500	HIRA	46	C	0245 E	0245.10	4 D	200 U	60 U		ML
	200	HIRA	46	C	0248.5	0249	2	1200	100		C
	100	HIRA	46	C	0249	0249.1	1	300	150		
	200	GORK	43	NS	0700		360		5		
	260	ONDR	44	NS	0730 E		450 D	23			
	245	SGMR	44	NS	1051 E	1612.3	489 D	14.9			
	410	SGMR	44	NS	1051 E	1328.3	489 D	22.8			
	3100	CRIM	1		0702	0705.5	5	10	3		
	6100	KISV			0705	0715		12			
	6100	KISV	45	C	0705	0717	35	26			
	3100	CRIM	31	ABC	0707	0749	73	6	2		
	10400	BERN	2	S/F	0714	0717.3	6	5			
	8400	BERN	2	S/F	0714	0717.3	6	14			
	10400	BERN	2		0714	0717.4	6	12			
	8400	BERN	2		0714	0717.4	6	37			TR
	2950	GORK	20	GRF	0714.9	0717.9	11.2	9.3	4.5		
	9100	GORK	21	GRF	0715.1	0715.9	13	9.5	3.5		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	5730	IRKU		0715	0716.1		33			
	5730	IRKU	45 C	0715	0716.2	12	10.	8		
	9100	GORK	1 S	0717.6	0718.2	.9	17.5	8.5		
	3100	CRIM	21 E	0820	0900	238	6	2		
	3100	CRIM	1	1001	1002	4	6	2		
	127	TORN	40 F	1056 U	1101.9	16 J	4.9	.3		
	3100	CRIM	28 PE	1205	1302		9			
	2800	OTTA	21 GRF	1248	1302	170	14.8			
	9400	HUAN	28 PRE	1253.8	1300.5D	6.7	4.9	4		D
	8800	ATHN	2 GRF	1253.8	1307.6	44.6	32.4	49.5		
	4995	ATHN	2 GRF	1254	1307.6	41	107.2	64.3		
	2695	ATHN	2 GRF	1258	1307.5	34.7	53.3	32		
	8400	BERN	3	1259	1307.4	34	76			14R
	10400	BERN	3	1259	1307.4	34	52			
	10400	BERN	3 S	1259	1307.4	34	18			
	8400	BERN	3 S	1259	1307.4	34	28			
	4995	SGMR	3 S	1259.7	1307.3	18.5	39.8	11.9		
	15400	SGMR	3 S	1300	1307.4	21.3	30	9.1		
	7000	SAOP	45 C	1300	1307.4	26.6	111			45R
	1415	SGMR	3 S	1300.5	1307.3	13.1	58	17.4		
	2695	SGMR	3 S	1300.5	1307.8	12.9	44.9	13.5		
	8800	SGMR	3 S	1300.5	1307.2	18.5	70	21		
	1415	ATHN	1 F	1300.9	1307.2	23.3	63.6	31.8		
	2650	DWIN	4 SF	1300	1318	25	40	20		
	10715	DWIN	4 SF	1300	1308	20	40	20		
	9500	BERL	29 PBI	1301	1307.3	29	51			
	2800	OTTA	4 S/F	1304.5	1307.5	10	32	12		
	9400	HUAN	3 S	1304.5E	1310.6	6.1	62.6	42		R
	1470	BERL	7 C	1305	1307.4	7.5	43			
	3000	BERL	3 S	1305.5	1307.4	7.8	45			
	606	SGMR	3 S	1305.6	1309.2	4.7	17.3	5.2		
	808	ONDR	46 C	1305	1307.6	7	55	14.6		
	930	BORO	46 C	1305	1306	6	97	10		
	536	ONDR	4 S/F	1306	1309	4	30	2.8		
	9400	HUAN	29 PBI	1310.6	1508.5	117.9	29.6	7.9		R
	7000	SAOP	40 F	1440						
	2800	OTTA	21 GRF	2040	2120	250	15.8	7.9		
	9400	HUAN	20 GRF	2041.3	2148.5	67.2	21.4	11.5		R
	2695	PENT	20 GRF	2242	2248	78	5.4	2.5		
	2695	BOUL	4 SF	2310 E	2311	3.5D	51	17		
22	930	HIRA	46 C	0058.8	0059.9	6	750	70		ML
	606	MANI	4 S/F	0059.2	0059.9	5.7	36.1	12.7		
	2695	PENT	4 S/F	0059.5	0100.2	3	35	12		
	8800	MANI	4 S/F	0059.5	0101.2	5.6	76.6	25.6		
	1415	SYDN		0059.6	0104.4		5			
	1415	SYDN	42 SER	0059.6	0100.6	6.6	18			
	2695	MANI	4 S/F	0059.7	0101.2	6.8	29.3	9.7		
	1415	MANI	4 S/F	0059.9	0101	6.1	18.5	6.2		
	700	SYDN	42 SER	0059.9	0100.3	6.6	34			
	700	SYDN		0059.9	0104.5		9			
	700	SYDN		0059.9	0103.3		6			
	2930	VORO	45 C	0320	0327	15	87			
	5730	IRKU		0322.5	0328.1		32			
	5730	IRKU		0322.5	0326 U		62 D			
	5730	IRKU		0322.5	0325 U		62 D			
	5730	IRKU	45 C	0322.5	0324 U	24	62 D			
	1415	SYDN	4 S	0323.2	0325.3	6.9	28			
	2695	MANI	4 S/F	0323.7	0327.4	7.5	54.9	21.6		
	700	SYDN	2 S	0324.1	0324.6	3.9	25			
	1415	MANI	4 S/F	0324.3	0326	6	23.7	7.9		
	8800	MANI	4 S/F	0324.8	0327.4	4	120.8	40.3		
	35000	NAGO	23 GRF	0325	0327	22	25			
	260	ONDR	44 NS	0718 E		460 D	18			
	4995	SGMR	45 C	1334	1343.1		81.6			SWF
	4995	SGMR	45 C	1334	1340.3	19.8	116	34.8		SWF
	7000	SAOP	46 C	1335	1340.6	30.2	131			26R
	10400	BERN	23	1335.3	1340.6	46	59			
	8400	BERN	23	1335.3	1340.6	46	67			15R
	10400	BERN	23 GRF	1335.3	1340.6	46	21			
	8400	BERN	23 GRF	1335.3	1340.6	46	27			
	4995	ATHN	14 C	1335.4	1340.7	26.5	103	30.9		
	15400	SGMR	3 S	1335.5	1340.5	23.2	47	16.5		SWF
	2695	SGMR	3 S	1336.5	1340.8	13.8	122	36.6		SWF
	2695	ATHN	4 S/F	1336.5	1340.4	15.9	124.7	37.4		
	2800	OTTA	4 S/F	1336	1340.5	15	104	30		
	8800	ATHN	14 C	1337	1343.5		88.7	26.6		
	8800	ATHN	14 C	1337	1340.6	25.3	93.7	28.1		
	3000	BERL	4 S/F	1337	1340.2	15	94			
	9400	HUAN	4 S/F	1337.1	1348	10.9	79.5	45.4		R
	1415	SGMR	45 C	1337.8	1340.2	16.3	75.4	22.6		SWF
	1415	SGMR	45 C	1337.8	1345.2		70.2			SWF
	4995	BOUL	45 C	1337	1340.5	12	54	18		
	808	ONDR		1337	1339.5		46			
	808	ONDR	45 C	1337	1345.2	13	55	15		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	930	BORO	45 C	1337	1345.2	15	86	15		
	1470	BERL	4 S/F	1338	1341.3	12	41			
	3500	BERL	4 S/F	1338	1343.7	30	71			
	1415	ATHN	14 C	1338.2	1345.3		66.3	19.9		
	1415	ATHN	14 C	1338.2	1339.9	15.9	79.6	23.9		
	8800	SGMR	45 C	1338.3	1343.2		76.5			SWF
	8800	SGMR	45 C	1338.3	1340.3	13.1	91.6	30		SWF
	1420	BOUL	45 C	1338 E	1340	8.5D	72	24		
	2650	OWIN	4 SF	1338	1340	20	170	50		
	10715	OWIN	4 SF	1338	1340	25	50	20		
	606	SGMR	3 S	1339	1339.9	5.9	10.6	3.2		SWF
	2695	BOUL	4 SF	1339.5E	1341.5	6 D	133	44		
	536	ONDR	8 S	1340.4	1340.4	.3	26			
	9400	HUAN	29 PBI	1348	1358	130	29.8	11.2		R
	9400	HUAN		1348	1343.5		72.9			R
	2800	OTTA	29 PBI	1351	1351	150	13.4	10.8		
	7000	SAOP	40 F	1457						
	2800	OTTA	240 R	1715	1750	45	3.6	1.8		
	410	SGMR	7 S	1817.4	1819.2	6.1	303	90.9		SWF
	606	SGMR	47 GB	1817.5	1818.7	5.9	1730	537		SWF
	9400	HUAN	45 C	1817.8	1826.8	9	405.7	135.3		R
	1415	SGMR	3 S	1817.9	1819.5	6.1	36.1	10.8		SWF
	4995	SGMR	3 S	1818	1819.2	5.2	102	30.7		SWF
	8800	SGMR	3 S	1818	1819.3	4	305	91.4		SWF
	2695	SGMR	3 S	1818	1819.8	6	64	19.2		SWF
	7000	SAOP	45 C	1818	1820.4	2.8	233			15R
	35000	SGMR	3 S	1818.4	1820	4.6	123	36.8		SWF
	1420	BOUL	3 S	1818.5E	1820	4 D	37	12		
	2800	OTTA	4 S/F	1818.5	1819.1	5	92.4	28		
	15400	SGMR	3 S	1818.6	1820.2	5.4	322	96.6		SWF
	245	SGMR	6 S	1818.6	1819.2	4.9	40.3	12.1		SWF
	4995	BOUL	45 C	1818	1818.5	3	88	29		
	2695	BOUL	45 C	1819.5E	1820.5	3 D	73	24		
	2800	OTTA	20 GRF	1835	2000	195	7.6	5		
	7000	SAOP	24 R	1856.5						D
	7000	SAOP	8 S	1856.5	1914.2	.3	160			4R
	2695	MANI	4 S/F	2337.1	2340.3	5.4	13.4	4.5		
	606	MANI	4 S/F	2337.3	2340.1	3.8	99.2	24.8		
	1415	MANI	4 S/F	2337.8	2340.4	5.4	13	4.2		
	4995	BOUL	3 S	2338.5	2339.5	2	13	4		
	500	HIRA	46 C	2339.1	2340.4	1.5	500	150		D
	2695	PENT	3 S	2339.5	2340.3	2.5	10.6	3.6		
	1415	SYDN	4 S	2339.7	2340.3	1.4	11			
	730	SYDN	4 S	2339.8	2340.5	1.4	29			
	1420	BOUL	3 S	2340 E	2340.5	1 D	12	4		
	2695	BOUL	3 S	2341 E	2341.5	1 D	13	4		
23	1415	MANI	4 S/F	0236.3	0238	3.4	22.3	7.4		
	606	MANI	4 S/F	0237.6	0237.9	.4	91.5	17.6		
	8400	BERN	46	0640	0647.3	17	324			9R
	10400	BERN	46	0640	0647.3	17	371			
	10400	BERN	46 C	0640	0647.3	17	132			
	8400	BERN	46 C	0640	0647.3	17	122			
	4995	ATHN	4 S/F	0644.2	0646.3	7.1	246.4	73.9		
	8800	ATHN	4 S/F	0644.2	0646.3	6.1	426.6	128		
	1415	ATHN	4 S/F	0644.2	0646.5	6.6	134.1	40.2		
	2695	ATHN	4 S/F	0644.2	0646.4	7	275.8	82.8		
	6100	KISV		0645	0848.2		70			
	6100	KISV	46 C	0645	0647.1	15	139			
	2950	GORK	3 S	0645	0647.2	4.5	250			
	950	GORK		0645	0647.6		65			
	950	GORK		0645	0647.1		130			
	950	GORK	46 C	0645	0645.1	5.7	70			
	2950	GORK	29 PBI	0645	0649.5	16.2	18			
	650	GORK		0645	0647.1		280			
	650	GORK		0645	0646.4U		90 D			
	650	GORK	46 C	0645	0645.1U	6	80 D			
	9100	GORK	29 PBI	0645.1	0649.4	23.7	16.5	6		
	9100	GORK	4 SF	0645.1	0647.3	4.3	295			
	500	HIRA	46 C	0645.1	0647.3	5	415	100		WL
	606	MANI	4 S/F	0645.2	0645.3	4.4	382.4	40		
	1415	MANI	4 S/F	0645.3	0647.6	11.9	120	40		
	2695	MANI	4 S/F	0645.3	0647.5	7.3	202.1	67.4		
	8800	MANI	4 S/F	0645.3	0647.4	7.2	382.1	127.4		
	3100	CRIM	3	0646	0648.5	8	256	80		
	15000	KISV	46 C	0646.3	0647	6	366			
	35000	NAGO	5 S	0646	0648	4	29			
	3000	BERL	4 S/F	0646	0648.1	8	133 U			
	9500	BERL	4 S/F	0646	0648.6	6	250 U			
	1470	BERL	4 S/F	0646	0647.8	9 U	89 U			
	202	IZMI	5 S	0647.3	0647.3	.4	1630	800		
	200	GORK	46 C	0648.6	0650.3	7.6	70			
	230	GORK		0648.6	0652		1150			
	221	ABST	45 C	0649.8	0651.5	2.5	38	19		
	202	IZMI	47 GB	0650.5	0651.2	2	1230	600		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	234	POTS	4	S/F	0650.8	0651.7	1.8	2800	230		
	100	GORK	46	C	0651.2	0652	7.1	2400			
	100	GORK			0651.2	0657.6		5000			
	100	GORK			0651.2	0656.5		2400			
	113	POTS	42	SER	0651.6	0657.50	6.1	1000	30		
	127	TORN	45	C	0652.9	0655	3.6	160 U	25 U		
	260	ONDR	44	NS	0716 E		474 D	118			
	410	SGMR	43	NS	1440	1707.6	260 D	536			
	245	SGMR	43	NS	1440	1236	260 D	294			
	3100	CRIM	3		0838	0840	4	50	17		
	2950	GORK	3	S	0838.6	0839.6	3.2	54			
	2695	ATHN	4	S/F	0838.9	0839.7	4.6	56	16.8		
	3000	BERL	3	S	0839	0839.8	3	91			
	9100	GORK	20	GRF	0839.2	0845.8	12	6.5	2.5		
	4995	ATHN	4	S/F	0839.2	0839.7	4.3	75	15		
	6100	KISV	8	S	0839.3	0840	1	5			
	2650	DWIN	4	SF	0839	0840	4	90	30		
	930	BORC	8	S	0841.2	0841.2	.1	21	2		
	228	HARS	45	C	0901	0901.5	1.5	175	70		
	228	HARS	45	C	0916.3	0916.5	1	135	50		
	536	ONDR	8	S	0935.3	0935.3	.3	32			
	228	HARS	45	C	1039.5	1039.8	1	430	150		
	234	POTS	8	S	1039.9	1039.9	.3	1000	250		
	202	IZMI	8	S	1040	1040	.3	800	300		
	228	HARS	45	C	1141.3	1141.5	.5	230	70		
	202	IZMI	4	S/F	1141.5	1142	.5	300	100		
	234	POTS	42	SER	1141.7	1141.9	4.6	420	1		
	113	POTS	8	S	1141.9	1141.9		600	300		
	234	POTS	8	S	1205.4	1205.4	.1	350	120		
	7000	SAGP	40	F	1335						D
	228	HARS	45	C	1627.5	1628	3	115	40		
	228	HARS	45	C	1708	1708.5	1.5	240	100		
	2800	OTTA	20	GRF	1740	1746	15	2.2	1.1		
	2800	OTTA	40	F	1900	1907	28	8			
	9400	HUAN	21	GRF	1929.5	2234.4	184.9	23	17.9		R
	2800	OTTA	21	GRF	1935	2100	265	8.8	4.4		
	4995	BOUL	45	C	2043	2045.6	11	33	11		
	9400	HUAN	3	S	2044.6	2048.1	3.5	24.6	18.9		R
	2800	OTTA	4	S/F	2044	2046.5	8	32.4	10.8		
	2695	BOUL	4	SF	2045 E	2048	5 D	30	10		
	4995	BOUL	45	C	2224.5	2226.5	4	35	12		
	1415	MANI	4	S/F	2224.7	2227.4	5.3	39.1	13		
	9400	HUAN	3	S	2225	2229.7	4.7	47.6	23.9		R
	500	HIRA	46	C	2225.4	2227	3	105	30		D
	2695	MANI	4	S/F	2225.9	2227.4	4.1	66.8	22.1		
	606	MANI	4	S/F	2225.9	2227.3	3.1	279.6	84		
	2695	PENT	4	S/F	2225	2227	7	72	18		
	8800	MANI	4	S/F	2226.3	2227.2	2.7	99.9	33.5		
	2695	BOUL	45	C	2226.5E	2228	3 D	64	21		
	1420	BOUL	4	SF	2226 E	2227	2.5D	35	12		
24	500	HIRA	46	C	0130	0130.6	2.3	35	9		WL
	200	GORK	44	NS	0433		447		5		
	127	TORN	44	NS	0630 E	1021.9	510 D	7	4		VO
	260	ONDR	44	NS	0718 E		442 D	44			
	410	SGMR	43	NS	1315.1	1752.6	344.9D	34.8			
	245	SGMR	43	NS	1315.5	1752	344.5D	411			
	200	GORK	46	C	0524.4	0525.8	10.3	18 D			
	200	GORK			0524.9	0530.4		75			
	200	GORK			0524.3	0528.6		100			
	100	GORK	4	SF	0534.3	0535.8	1.9	115			
	200	GORK	8	S	0612.3	0612.5	.4	55			
	130	GORK	8	S	0612.3	0612.5	.7	120 D			
	100	GORK	8	S	0627.4	0627.7	.8	130 D			
	9100	GORK	21	GRF	0717.3	0725	30.7	9	3.5		
	650	GORK	4	SF	0718.3	0721	3.3	215			
	15000	KISV	46	C	0718	0721.1	6	172			
	10400	BERN	4	S/F	0719.9	0721.1	8	80			
	8400	BERN	4	S/F	0719.9	0721.1	8	100			
	8400	BERN	4		0719.9	0721.1	8	266			4R
	10400	BERN	4		0719.9	0721.1	8	235			
	6100	KISV	46	C	0719	0721.3	9	93			
	6100	KISV			0719	0723		20			
	6100	KISV			0719	0722.3		28			
	6100	KISV			0719	0722		32			
	3000	BERL	4	S/F	0720.1	0721.1	4.9	100			
	2695	MANI	4	S/F	0720.2	0721.2	4.8	119.7	39.9		
	8800	MANI	4	S/F	0720.2	0721.2	4.8	318.6	106.2		
	1415	MANI	4	S/F	0720.2	0721	5.8	73.8	24.6		
	606	MANI	4	S/F	0720.2	0720.4	2.3	352	117.3		
	9500	BERL	4	S/F	0720.3	0720.9	3.7	203			
	1470	BERL	4	S/F	0720.3	0721.5	4.7	60			
	530	HIRA	46	C	0720.3	0720.4	1.6	98	48		WL
	2950	GORK	3	S	0720.4	0721	5.8	82			
	9100	GORK	4	SF	0720.4	0721.3	3.6	279			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	1415	ATHN	4 S/F	0720.4	0721.3	4.1	58.7	17.6		
	2695	ATHN	4 S/F	0720.4	0721.3	5.3	110.7	33.2		
	4995	ATHN	4 S/F	0720.5	0721.4	9.1	143.5	44.9		
	8800	ATHN	4 S/F	0720.5	0721.3	9.1	334.8	100.4		
	3100	CRIM	3	0721.5	0722	5	100	30		
	950	GORK	5 S	0720.5	0721.6	4.2	112			
	536	ONDR	41 F	0720	0720.4	21	124	3		
	308	ONDR	4 S/F	0720	0721.3	4	92	31		
	10715	OWIN	4 SF	0720	0721	4	160	80		
	2650	OWIN	4 SF	0720	0721	5	110	50		
	200	GORK	8 S	0725.7	0726	.6	20			
	228	HARS	45 C	0735	0735.3	.8	130	30		
	3100	CRIM	24	0800	1020		5			
	7000	SAOP	24 R	1148.6						C
	9400	HUAN	20 GRF	1336.6	1351.2	44.6	7.9	5.2		R
	410	SGMR	6 S	1315.1	1317.1	2.5	166	49.8		
	245	SGMR	40 G3	1315.5	1317	1.9	932	280		
	536	ONDR	4 S/F	1315.5	1317	5	228	10		
	234	POTS	4 S/F	1315.5	1316.7	1.8	1000	50		
	4995	SGMR	3 S	1315.7	1316.6	6.1	13.4	4		
	8800	SGMR	1 S	1315.7	1316.6	7.3	5.8	1.7		
	606	SGMR	3 S	1315.8	1316.8	2	381	114		
	260	ONDR	45 C	1315	1316.8	5	206	32		
	3000	BERL	4 S/F	1316	1317.1	2.5	34			
	7000	SAOP	3 S	1316	1316.8	2	16			56R
	228	HARS	45 C	1316.2	1317	1.5	575	250		
	1415	SGMR	3 S	1316.3	1316.8	1.5	68.6	20.6		
	2695	ATHN	1 F	1316.4	1317.2	1.6	69.9	35		
	4995	ATHN	2 GRF	1316.4	1317	2.3	13.6	8.2		
	8800	ATHN	2 GRF	1316.4	1317	1.1	9.4	5.7		
	1415	ATHN	1 F	1316.5	1317	1.3	73.1	36.6		
	1470	BERL	4 S/F	1316.5	1317.1	1.5	56			
	9500	BERL	1 S	1316.5	1317.5	1.7	9.7			
	2695	SGMR	3 S	1316.7	1317.3	1.5	55.5	16.7		
	808	ONDR	2 S/F	1316	1317.2	2	48	19		
	2650	OWIN	45 C	1316	1317	2	80	20		
	930	BORD	45 C	1316	1316.8	2	76	15		
	2800	OTTA	21 GRF	1410	1450	230	11.4			
	9400	HUAN	28 PRE	1420.2	1441.6	21.4	17.5	3.2		0
	10400	BERN	46 C	1440	1442.7	33	37			
	8400	BERN	46 C	1440	1442.7	33	26			
	10400	BERN	46	1440	1442.7	33	139			
	8400	BERN	46	1440	1442.7	33	69			C
	7000	SAOP	45 C	1440	1446.7	52	94			0
	4995	BCUL	45 C	1440.5	1446.5	10	39	13		
	4995	SGMR	45 C	1441.5	1442.3	10.5	43	17		5,SWF
	4995	SGMR	45 C	1441.5	1446.7		56			5,SWF
	8800	ATHN	2 GRF	1441.5	1454	12.5	138.6	65.1		
	4995	ATHN	2 GRF	1441.6	1447	12.6	47.7	28.6		
	2695	ATHN	2 GRF	1441.6	1443	9.6	14.7	8.8		
	15400	SGMR	3 S	1441.6	1443	7.2	244	49		5,SWF
	9400	HUAN	45 C	1441.6	1449.5	7.9	119.1	44.6		R
	8800	SGMR	45 C	1441.7	1442.5	10.3	125	38		5,SWF
	8800	SGMR	45 C	1441.7	1446.7		92			5,SWF
	2800	OTTA	2 S/F	1441	1446.8	9	9	4.9		
	10715	OWIN	45 C	1441	1443	15	110	40		
	2695	BCUL	20 GRF	1443 E	1448	15.50	11	4		
	9400	HUAN	29 PSI	1449.5	1602.2	72.7	19	11.4		C
	7000	SAOP	40 F	1650						D
	4995	BCUL	3 S	1720	1721	3	15	5		
	7000	SAOP	3 S	1721	1721.8	1.2	16			38R
	228	HARS	45 C	1721.2	1721.8	1.2	330	150		
	2800	OTTA	1 S	1721	1722	2	9.8	4.9		
	2695	PENT	2 S/F	2156	2159	6	5	2.5		
25	8800	MANI	4 S/F	0039.5	0040.9	8.8	252.8	84.3		
	4995	BCUL	4 SF	0039	0040	4	113	38		
	2695	MANI	3 S	0040	0041.1	8.3	30.1	10		
	1415	MANI	4 S/F	0040.5	0042.9	5.5	41.6	4.9		
	2695	PENT	45 C	0040	0041	8	32.6	17.6		
	35000	NAGO	5 S	0040	0040	2	49			
	35000	NAGO	30 P3I	0042	0047	14	11			
	2695	PENT	29 P3I	0048	0048	40 D	14			
	500	HIRA	42 SER	0452.4	0458	9	345			C
	9100	GORK	22 GRF	0522.5	0530	12.9	9			
	530	HIRA	46 C	0529	0529.8	1.3	1400	340		C
	650	GORK	4 SF	0529.3	0529.5	1.2	78	23		
	950	GORK	1 S	0529.4	0530	1.2	7			
	200	GORK	8 S	0529.7	0529.9	.7	15			
	3100	CRIM	24	0644	0710		10			
	9100	GORK	20 GRF	0646.7	0652.2	44	22	9.5		
	6100	KISV	20 GRF	0646	0652.3	14	9			
	2950	GORK	21 GRF	0649.4	0654.7	220	6			
	260	ONDR	44 NS	0720 E		460 D	12			
	536	ONDR	43 NS	0856		324	260			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
	410	SGMR	44	NS	1044 E	1543.5	496 D	47			
	245	SGMR	44	NS	1044 E	1824.7	496 D	338			
	650	GORK	1	S	0857.4	0857.5	.5	5	2.5		
	9100	GORK	1	S	0909.2	0910.1	5.3	5	2.5		
	650	GORK	1	S	0909.7	0909.9	.3	11.5	6		
	6100	KISV	1	S	0914	0915	2	3			
	650	GORK	3	S	0941.6	0941.8	.6	37	18		
	9100	GORK	1	S	0945.6	0946.2	1.7	4	2		
	650	GORK	22	GRF	0945.6	0950.7	13.2	24	10		
	2950	GORK	3	S	0953.6	0954.6	28	17	8		
	3000	BERL	3	S	1022.7	1024.9	3.3	16			
	6100	KISV	3	S	1022	1024.3	5	20			
	10400	BERN	3	S	1023	1024.4	8	5			
	8400	BERN	3	S	1023	1024.4	8	10			
	9500	BERL	3	S	1023	1024.5	4	19			
	10400	BERN	3		1023.1	1024.4	8	15			
	8400	BERN	3		1023.1	1024.4	8	27			J
	8800	ATHN	2	GRF	1023.2	1024.4	5.3	37.8	22.7		
	1415	ATHN	4	S/F	1023.2	1024	4	73.6	22.1		
	4995	ATHN	2	GRF	1023.2	1024.4	4.1	25.1	15		
	2695	ATHN	2	GRF	1023.5	1024.5	3	6.7	4		
	1473	BERL	4	S/F	1023.5	1024.4	2	78			
	9100	GORK	3	S	1023.6	1024.6	4.8	27.5	13.5		
	950	GORK	1	S	1024	1024.1	.4	4	2		
	650	GORK	46	C	1155.9	1156.1	1.80	74			
	650	GORK			1155.9	1156.9		100			
	808	ONDR	42	SER	1156	1157	4	80			
	930	BORD	42	SER	1156	1156.7	3.6	111	2		
	808	ONDR	3	S	1417.1	1417.1	.2	30			
	9400	HUAN	2	S/F	1631.8	1634.3	2.6	21.6	8.5		R
	4995	BCUL	4	SF	1631	1633	3	20	7		
	2800	OTTA	1	S	1632	1633.4	3	8.2	2.8		
	7000	SAOP	46	C	1756.5	1811.3	20.7	615			3L
	245	SGMR	6	S	1757.3	1803.2	9.7	164	49.2		SWF
	4995	SGMR	3	S	1800.5	1808.9	13.9	410	123		SWF
	8800	SGMR	47	GB	1800.6	1808.8	15.2	776	233		SWF
	1415	SGMR	3	S	1800.7	1809.4	17.5	93.8	28.1		SWF
	9400	HUAN	45	C	1800.8	1811.3	10.5	501.3	147.4		L
	4995	BCUL	45	C	1800	1809	15.5	336	112		
	15400	SGMR	3	S	1802	1808.2	13	361	108		SWF
	606	SGMR	3	S	1802.2	1809.3	11.8	10.6	3.2		SWF
	2800	OTTA	4	S/F	1802.2	1809	13.8	325	63		
	410	SGMR	6	S	1802.4	1804	1.7	38.4	11.5		SWF
	2800	OTTA	21	GRF	1802	1907	180	17.4	9.2		
	2695	SGMR	3	S	1803.3	1809.6	15.5	356	107		SWF
	2695	BCUL	45	C	1803.5E	1810	11.5D	362	121		
	1420	BCUL	3	S	1807.5E	1809.5	8.5D	105	35		
	9400	HUAN	29	PBI	1811.3	1835.2	23.9	36.5	25.6		L
	2800	OTTA	29	PBI	1816	1816	14	9.8	3.2		
	9400	HUAN	21	GRF	1901.7	2050.2	108.5	21.6	10.7		Q
	9400	HUAN	1	S	1946.5	1948.5	2	8.3	7		L
	9400	HUAN	2	S/F	2123.7	2125.4	1.7	10	9		R
	500	HIRA	46	C	2229.6	2230.5	1.5	235	75		Q
26	700	SYDN	4	S	0015.9	0016.7	2.3	17			
	700	SYDN	8	S	0019.4	0020	.9	30			
	700	SYDN	4	S	0051.2	0051.7	1.4	17			
	5730	IRKU	2	S	0129	0136.7	13	72			
	2930	VORO	3	S	0133	0139	9	51			
	2695	MANI	3	S	0135.1	0136.7	4.2	42.4	14.1		
	1415	MANI	4	S/F	0135.3	0136.8	3.2	9.7	3		
	1415	SYDN	2	S	0135.5	0137	4	13			
	8800	MANI	3	S	0135.9	0136.5	1.6	36.5	12.1		
	5730	IRKU	29	PBI	0142		65	26			
	700	SYDN	8	S	0220.2	0220.2	.2	41			
	700	SYDN	8	S	0236	0236.9	1.2	125			
	5730	IRKU	22	GRF	0308.7	0317.8	14	18	8		
	500	HIRA	46	C	0316.9	0317.3	1	65	30		Q
	9100	GORK	1	S	0526.6	0527	2	14	7		
	650	GORK	1	S	0549.3	0549.4	.5	1.1			
	9100	GORK	21	GRF	0551.5	0750.2	137.6	12	7		
	5730	IRKU	1	S	0706.5	0707.1	2	12			
	9100	GORK	1	S	0706.7	0707	.8	7.5	3.5		
	221	ABST	4	S/F	0746	0746.5	1	39	16		
	1470	BERL	20	GRF	0747	0757.5	25	2.4			
	10400	BERN	3	S	0747.8	0748.4	4	8			
	8400	BERN	3	S	0747.8	0748.4	4	10			
	10400	BERN	3		0747.8	0748.4	4	23			CPR
	8400	BERN	3		0747.8	0748.4	4	27			CPR
	3000	BERL	20	GRF	0748	0751	12	6.3			
	9500	BERL	29	PBI	0746	0745.4	21	19			
	9100	GORK	1	S	0748.1	0748.4	1	24	12		
	4995	ATHN	2	GRF	0748.1	0748.5	3.7	6.8	4.1		
	8800	ATHN	2	GRF	0748.2	0748.5	3.8	25.1	15		
	228	HARS	45	C	0749.5	0750	1.5	350	150		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	260	ONDR	44 NS	0750 E		443 D	88	6		
	410	SGMR	44 NS	1042 E	1124.8	498 D	81			SWF
	245	SGMR	44 NS	1042 E	1334.4	498 D	249			SWF
	127	TORN	43 NS	1226 U	1305.7	154 D	18	14		VO
	950	GORK	1 S	0750.2	0750.5	1	2			
	200	GORK	4 SF	0750.2	0751.2	1.2	27			
	650	GORK	3 S	0750.3	0750.5	.5	12	6		
	234	POTS	4 S/F	0750.4	0750.6	.7	350	50		
	536	ONDR	42 SER	1121.5	1123	5	27			
	930	BORD	41 F	1121	1122.2	4	47	2		
	33	UPIC	4 S/F	1123.9		1.1				
	15000	KISV	46 C	1123	1211	57	300			
	15000	KISV	29 PBI	1123	1220	D	43			
	15000	KISV		1123	1152		110			
	29	UPIC	4 S/F	1124.1	1124.2	.7				
	7000	SAOP	46 C	1118	1211.7		778			BL
	9100	GORK	47 GB	1139.2	1152	80.8E	260			
	4995	ATHN	5 GB	1139.8	1211.1	45.2	679.8	233.9		
	8800	ATHN	5 GB	1140.8	1211.1	63.7	2051.9	615.6		
	950	GORK		1142.1	1147.5		30 D			
	950	GORK	46 C	1142.1	1143.7	35	30 D			
	950	GORK		1142.1	1210.5		90			
	808	ONDR	41 F	1142	1147.6	14	100	7		
	930	BORD	46 C	1142	1143.2	16	135	10		
	1415	SGMR	45 C	1144.8	1210.2		157			SWF
	1415	SGMR	45 C	1144.8	1152	31.7	12	47		SWF
	650	GORK	40 F	1145.9	1147.9	6.2	8			
	650	GORK		1145.9	1151.9		5			
	650	GORK		1145.9	1150.4		2.5			
	9500	BERL	28 PRE	1145	1152.1	12	214			
	6100	KISV		1145	1152		100			
	6100	KISV	46 C	1145	1209	40	114			
	6100	KISV	29 PBI	1145	1225	D	32			
	6100	KISV		1145	1212		114			
	8800	SGMR	47 GB	1147.1	1151.8	29	247	219		SWF
	8800	SGMR	47 GB	1147.1	1211		729			SWF
	15400	SGMR	45 C	1147.1	1210.7		262			SWF
	15400	SGMR	45 C	1147.1	1152.3	36.5	256	79		SWF
	4995	SGMR	47 GB	1147.3	1151.7	30.9	94	173		SWF
	4995	SGMR	47 GB	1147.3	1211		577			SWF
	9400	HUAN	45 C	1147.5	1203 D	15.5	247.9	67		L
	2950	GORK		1148.1	1211		240			
	2950	GORK		1148.1	1209.6		700			
	2950	GORK	47 GB	1148.1	1152	72 D	50			
	10400	BERN	46 C	1149.2	1210.8	50	100			
	8400	BERN	46 C	1149.2	1210.8	50	140			
	10400	BERN	46 C	1149.2	1152	50	60			
	8400	BERN	46 C	1149.2	1152	50	62			
	8400	BERN	46	1149.2	1210.8	50	375			SR
	8400	BERN	46	1149.2	1152	50	163			AR
	10400	BERN	46	1149.2	1152	50	165			
	10400	BERN	46	1149.2	1210.8	50	317			
	2695	ATHN	5 GB	1149.2	1211.2	35.3	519.1	155.7		
	1415	ATHN	4 S/F	1150	1210.2	27.5	172.9	51.9		
	3130	CRIM	3	1150	1152.5	6	35	12		
	2695	SGMR	45 C	1150.2	1152.5	27	49	149		SWF
	2695	SGMR	45 C	1150.2	1211.5		496			SWF
	3000	BEPL	28 PRE	1150	1152	5.5	42			
	1470	BERL	28 PRE	1150	1152.3	6	12			
	10715	DWIN	4 SF	1150	1153	6	170	100		
	2650	DWIN	4 SF	1151	1152	5	40	20		
	9500	BERL	28 PRE	1200	1216.8	40	492			
	3000	BERL	28 PRE	1200	1211	21	432 U			
	1470	BERL	28 PRE	1202	1210.9	18	154			
	650	GORK	22 PRE	1203.8	1204.4	.7	7.5	3.6		
	2650	DWIN	45 C	1203		20	130 D			
	650	GORK	4 SF	1204.5	1210.2	11.9	140			
	650	GORK	29 PBI	1204.6	1216.5U	43.5D	9			
	9400	HUAN	45 C	1206.5	1211.8	5.3	322.1	177.9		L
	808	ONDR	4 S/F	1206	1210	6	172	43		
	10715	DWIN	45 C	1207	1210	3	230 D			
	930	BORD	45 C	1207	1210	9	239	35		
	3100	CRIM	29 PB	1209	1216	60	16			
	3100	CRIM	47 B	1209	1210.5	16	426	120		
	9100	GORK		1210.6			480 D			
	9400	HUAN	29 PBI	1211.8	1253.4	41.6	70.2	9.7		L
	536	ONDR	4 S/F	1212	1212.5	2.5	169	21		
	127	TORN	45 C	1215.8	1217.6	2.8	140			
	113	POTS	4 S/F	1215.9	1216.8	1.9	210	25		
	536	ONDR	23 GRF	1235	1316	55	14	11		
	808	ONDR	23 GRF	1237	1237	34	48	22		
	234	POTS	41 F	1323.2	1324.3	1.5	230	8		
	9500	BERL	20 GRF	1405	1427	55 D	26			
	2800	OTTA	20 GRF	1405	1455	100	13.8	6		
	3000	BERL	20 GRF	1406	1450	54 D	16			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	9400	HUAN	20 GRF	1409.1	1511.50	62.4	39.6	21.9		L
	8800	ATHN	2 GRF	1413.6	1436.7	50.1	34.6	20.7		
	4995	ATHN	2 GRF	1413.6	1436.2	50.1	12.8	7.7		
	10400	BERN	20	1414	1427	86	24			
	8400	BERN	20	1414	1427	86	33			OPR
	10400	BERN	20	1414	1427	86	8			
	8400	BERN	20	1414	1427	86	12			
	1475	BERL	20 GRF	1415	1453	45 D	6.7			
	2800	OTTA	26 FAL	1645	1705	20	-2.8	-1.4		
	606	SGMR	3 S	1653	1653.2	.3	15	3		SWF
	245	SGMR	48 G3	1653	1653.2	.5	638	128		SWF
	410	SGMR	6 S	1653	1653.1	.4	146	29		SWF
	2800	OTTA	20 GRF	1715	1800	95	5	2.6		
	2695	PENT	26 FAL	1842	1908	16	-2.4	-1.2		
	2800	OTTA	21 GRF	2005	2040	55	3.6	1.8		
	2695	PENT	2 S/F	2013	2013.5	3	6	3		
	2800	OTTA	8 S	2139.8	2110	.5	2.8	1.4		
	2800	OTTA	1 S	2139.5	2141	3	4.4	2.4		
	4995	BOUL	3 S	2139.5	2140.5	3	15	5		
	2695	MANI	4 S/F	2357	2359.6	5.5	40.7	9		
	500	HIRA	46 C	2357.2	2359.6	3	100	26		WRWL
	1415	SYDN	42 SER	2357.4	2358	3.7	60			
	700	SYDN		2357.4	2359.8		93			
	700	SYDN	42 SER	2357.4	2359.2	3.5	43			
	700	SYDN	42 SER	2357.4	2358	3.5	32			
	1415	SYDN		2357.4	2359.7		228			
	1415	SYDN		2357.4	2359.1		106			
	2695	PENT	45 C	2357.5	2400	5.3	40	11.2		
	1420	BCUL	42 SER	2357.5E	2359.5	3 D	409	136		
	606	MANI	4 S/F	2357.5	2359.7	2.3	56.7	18.9		
	1415	MANI	4 S/F	2357.5	2359.7	4	279.7	55.5		
	2695	BCUL	45 C	2358 E	0000.5	4 D	36	12		
	4995	BOUL	8 S	2358	2359	2.5	51	17		
	8800	MANI	4 S/F	2359.3	2359.6	.8	55.3	18.4		
27	500	HIRA	46 C	0007.4	0013	4	77	.24		SL
	500	HIRA	46 C	0025.2	0026	3	360	50		WL
	5730	IRKU		0540	0556.4		30			
	5730	IRKU		0540	0553.5		36			
	5730	IRKU		0540	0548.4		41			
	5730	IRKU	45 C	0540	0546.4	31	23			
	5730	IRKU		0540	0607.5		135			
	5730	IRKU		0540	0602.3		92			
	9100	GORK	25 R	0543.3		407 E	13.5			
	3100	CRIM	28 FE	0544	0548.5	12	20	7		
	4995	ATHN	2 GRF	0544.5	0548.5	13.8	76.7	22		
	2695	ATHN	2 GRF	0544.7	0548.5	13.2	10.1	6.1		
	8800	ATHN	2 GRF	0544.8	0548.5	14.2	108.7	65.2		
	200	GORK	43 NS	0545		120 E		5		
	221	ABST	44 NS	0600	0614	180	12			
	260	ONDR	44 NS	0710 E		478 D	10	3		
	245	SGMR	43 NS	1040 E	1550	500 D	83.8			CONT
	410	SGMR	43 NS	1040 E	1455.9	500 D	221			CONT
	536	ONDR	43 NS	1120		220 D	36			
	606	SGMR	43 NS	1310.9	1351	349.10	22.4			CONT
	2950	GORK	21 GRF	0545	0548.7	54	17			
	9100	GORK		0545	0607.4		312			
	9100	GORK		0545	0603.7		234			
	9100	GORK	46 C	0545	0548.6	28	140			
	35000	NAGO	5 S	0545	0549	14	130			
	3100	CRIM	1	0556	0557	2	9	3		
	35000	NAGO	5 S	0559	0608	28	149			
	4995	ATHN	14 C	0600.2	0607.6	24.5	162	48.6		
	8800	ATHN	14 C	0600.2	0607.6	24.3	197.6	59.3		
	1415	ATHN	2 GRF	0600.4	0605.2	15.6	48.4	29		
	2695	ATHN	2 GRF	0600.4	0606.2	16.7	74.1	44.5		
	3100	CRIM	29 PB	0600.5	0608.5		19			
	3100	CRIM	3	0600.5	0606	8	104	30		
	2950	GORK	3 S	0600.6	0606.3	10.6	138			
	8800	MANI	4 S/F	0600.9	0607.6	10.5	266.2	156.6		
	2695	MANI	4 S/F	0601	0606.5	10.7	72.1	40.1		
	10400	BERN	4	0601 E	0607.4	14 D	37 D			
	8400	BERN	4	0601 E	0607.4	14 D	32 D			
	8400	BERN	4	0601 E	0607.4	14 D	85 D			
	1415	MANI	4 S/F	0601	0605.6	10.7	34	17		
	10400	BERN	4	0601 E	0607.4	14 D	107 D			
	950	GORK		0602.1	0607.3		29			
	950	GORK	45 C	0602.1	0606.1	14	37			
	650	GORK	4 SF	0604	0606.2	3.6	14			
	500	HIRA	46 C	0605.5	0605.7	1	22	10		Q
	606	MANI	3 S	0605.7	0606.5	1.5	15.7	5.3		
	200	GORK	4 SF	0608.3	0608.6	.9	25			
	234	POTS	8 S	0638.5	0638.6	.1	260	50		
	5730	IRKU	1 S	0713	0713.3	1	6	3		
	9100	GORK	1 S	0713.1	0713.3	.9	9	4.5		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	6100	KISV	4 S/F	0713	0713.2	2	7			
	202	IZMI	45 C	0810.8	0815.2	6.7	1430	600		
	221	ABST	48 C	0811	0814	5	67	24		
	808	ONDR	45 C	0811.4	0812.5	3	152	74		
	260	ONDR	46 C	0811.5		8.5	212 D	77		
	228	HARS	48 C	0811.5	0814 U	10	550	70		
	113	POTS	45 C	0811.9	0811.9	12	700	20		
	234	POTS	45 C	0811.8	0812.7	6	1700	230		
	536	ONDR	4 S/F	0811	0813.3	9	14	7.8		
	930	BORD	45 C	0811	0812.5	3	99	30		
	1470	BERL	3 S	0814	0816.2	6	5.5			
	3000	BERL	3 S	0814	0816	5	10			
	234	POTS	8 S	0848.5	0848.5	.2	630	160		
	536	ONDR	3 S	0848.6	0848.6	.3	22			
	260	ONDR	8 S	0848	0848	.3	212 D			
	1470	BERL	41 F	1001.4	1001.6	2.1	6.2			
	234	POTS	42 SER	1110.4	1119.5	10	175	2		
	7000	SAOP	45 C	1116	1123.6	44	67			G
	2950	GORK	21 GRF	1117	1121	49	13			
	3000	BERL	7 C	1118	1123.5	59	37			
	3100	CRIM		1118.5	1123.5	34	100	33		
	127	TORN	45 C	1119.4	1120.9	40 U	110			
	2695	SGMR	3 S	1120	1123	15	58.8	17.6		3S
	2695	ATHN	4 S/F	1120	1123.6	18.8	86.3	25.9		
	4995	SGMR	3 S	1120.2	1122.8	14.5	70.5	21.2		3S
	33	UPIC	46 C	1120.2	1123.2	11.1				
	29	UPIC	46 C	1120.2	1123.4	11.4				
	1470	BERL	31 ABS	1120.5	1130	35	11			
	4995	ATHN	4 S/F	1120.5	1123.7	36.9	73.4	22		
	10400	BERN	23	1120.6	1134.8	76	20			
	8400	BERN	23	1120.6	1134.8	76	27			G
	10400	BERN	23	1120.6	1134.8	76	7			
	8400	BERN	23	1120.6	1134.8	76	10			
	8800	SGMR	3 S	1120.8	1122.4	14.5	20.8	6.2		3S
	6100	KISV	45 C	1120	1130	17	19			
	6100	KISV	29 PBI	1120	1137	23	10			
	6100	KISV		1120	1135		15			
	2950	GORK		1121	1135		26			
	2950	GORK		1121	1130.3		36			
	2950	GORK	46 C	1121	1124.1	19.2	48			
	8800	ATHN	2 GRF	1121	1123.8	37	38.9	23.3		
	1415	ATHN	2 GRF	1121.2	1121.9	17.1	4.6	2.7		
	9100	GORK	40 F	1121.7	1123.7	17.5	40			
	9500	BERL	22 GRF	1121	1135	69	26			
	650	GORK	20 GRF	1124	1133.1	24	7.6			
	29	UPIC	2 S/F	1152.6	1153.1	1.1				
	33	UPIC	2 S/F	1152.8	1153	.6				
	2650	DWIN	45 C	1218	1223	30	90	30		
	1470	BERL	3 S	1222.5	1223	1.5	6.7			
	2650	DWIN	45 C	1307	1308	3	60	20		
	9400	HUAN	21 GRF	1514.3	1641	86.7	4.9	2.3		R
	9400	HUAN	1 S	1628.9	1630.3	1.4	8.2	6.6		R
	2800	OTTA	240 R	1835	1930	85	3.6	1.6		
	2800	OTTA	20 GRF	2135	2155	100	2.6	1.3		
28	700	SYDN		0538.7	0513					
	700	SYDN	40 F	0538.7	0510.4	6.6	28			
	500	HIRA	46 C	0510	0514.3	9	70	30		ML
	221	ABST	43 NS	0511	0534	45	32			
	3100	CRIM	1	0543.5	0544	1	10	3		
	2950	GORK	1 S	0543.7	0544.1	1.5	6			
	950	GORK		0636.2	0610.2		4			
	950	GORK	45 C	0636.2	0636.4	4.2	2			
	650	GORK		0636.3	0639.4U		27 D			
	650	GORK	45 C	0636.3	0636.4	5.2	8.5			
	650	GORK		0636.3	0640.5		20			
	2950	GORK	29 PBI	0643	0645.2	27	10	3.5		
	2950	GORK	3 S	0643	0644.2	2.2	20	10		
	3100	CRIM	1	0643	0644	4	20	7		
	950	GORK	1 S	0644	0645	5.6	2			
	260	ONDR	44 NS	0716 E		464 D	44			
	245	SGMR	44 NS	1038 E	1119.4	502 D	17.6			
	410	SGMR	44 NS	1038 E	1829.6	502 D	32.7			
	930	BORD	46 C	1232.6	1233	.8	31	2		
	2800	OTTA	20 GRF	1240	1325	230	6.2	3.3		
	930	BORD	41 F	1332	1334.8	3	34	2		
	2800	OTTA	20 GRF	1720	1850	195	3.6	1.6		
	2695	PENT	20 GRF	2215	2255	135	3.4	1.7		
29	950	GORK	1 S	0651.8	0656.6	12.2	6	3		
	3100	CRIM	22 PE	0710	0747		27			
	260	ONDR	44 NS	0713 E		464 D	50			
	245	SGMR	44 NS	1039 E	1622.2	501 D	45.1			
	410	SGMR	44 NS	1039 E	1328.3	501 D	14.1			
	10400	BERN	20	0717	0735.7	45	10			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	8400	BERN	20		0717	0735.7	85	12			
	8400	BERN	20		0717	0735.7	85	33			0
	10400	BERN	20		0717	0735.7	85	29			
	3000	BERL	20	GRF	0718	0749	77	20			
	6100	KISV	24	R	0720	0740	D	16			
	950	GORK	22	GRF	0721.6	0725.1	9.3	4			
	2950	GORK	20	GRF	0721.8	0725.8	89	15	6		
	1470	BERL	20	GRF	0721	0749.2	69	7			
	650	GORK	40	F	0722.5	0723.1	7.5	4.5			
	9100	GORK	25	R	0722.5		337 E	18			
	650	GORK			0722.5	0728.8		2.5			
	650	GORK			0722.5	0725.1		3.2			
	9500	BERL	20	GRF	0723	0740.2	66	23			
	15000	KISV	27	RF	0725	0730.2	10	13			
	8800	ATHN	1	F	0812.4	0815	4.9	74.1	37.1		
	9500	BERL	3	S	0950.1	0950.7	2.4	27			
	9100	GORK	3	S	0951.2	0951.4	.8	38	19		
	3100	CRIM	3		1052.5	1103	14	21	10		
	8800	ATHN	2	GRF	1054.1	1102.5	21.2	39	23.4		
	6100	KISV	27	RF	1054	1103.2	66	10			
	2950	GORK	20	GRF	1055.2	1104.6U	99 D	20 U			
	2695	ATHN	2	GRF	1055.9	1103.5	14.8	18.7	11.2		
	950	GORK	45	C	1056	1057	16.7	3.6			
	950	GORK			1056	1104		6			
	4995	ATHN	2	GRF	1056.1	1103.4	14.2	23.4	14		
	1415	ATHN	2	GRF	1056.2	1103.5	13	22.3	13.4		
	9500	BERL	20	GRF	1057.5	1115.5	38	6.7			
	3000	BERL	3	S	1059	1103.2	10	11			
	1470	BERL	3	S	1101	1102.6	8	8.5			
	15000	KISV	1	S	1114.3	1152.2	3	5			
	2800	OTTA	20	GRF	1230	1252	70	2.6	1.3		
	228	HARS	48	C	1248	1248.5U	7	350	30		
	245	SGMR	7	S	1248.5	1250.8	4.5	451	90.2		
	410	SGMR	6	S	1248.6	1250.6	4.4	43.5	8.7		
	234	POTS	41	F	1249.2	1249.6	4.3	350	4		
	260	ONDR	46	C	1249	1251.8	6	128	24		
	1415	SGMR	3	S	1250.1	1250.6	3.9	27.5	5.5		
	606	SGMR	3	S	1250.2	1252.2	3.3	131	26.2		
	3000	BERL	1	S	1251	1252.5	2	5.9			
	536	ONDR	45	C	1251	1251.5	2.5	68	5		
	838	ONDR	45	C	1251	1251.6	2	60	5		
	930	BORD	46	C	1251	1251.4	2	131	15		
	1470	BERL	4	S/F	1252	1252.1	1.5	13			
	4995	BOUL	45	C	1802	1802.5	5.5	42	14		
	2800	OTTA	1	S	1848	1849	3	3.6	1.6		
	2800	OTTA	20	GRF	1950	2000	15	1.8	.9		
	2800	OTTA	20	GRF	2015	2022	25	3.6	1.6		
	2800	OTTA	20	GRF	2117	2122	20	1.8			
	2695	PENT	20	GRF	2300	2312	95	9.4	4.5		
30	5730	IRKU	1	S	0037	0038.2	5	17	5		
	4995	BOUL	3	S	0037.5	0038.5	2.5	15	5		
	1415	SYDN			0038.4	0039.9					
	1415	SYDN	40	F	0038.4	0038.7	1.7	9			
	2695	PENT	1	S	0038.5	0039.1	2	9.4	5.7		
	700	SYDN	8	S	0039.7	0039.9	.5	28			
	2695	MANI	4	S/F	0409	0410	2.7	12	4.1		
	1415	MANI	4	S/F	0409	0410	3.8	4.9	1.7		
	9100	GORK	1	S	0523.8	0524.3	.6	11.5	5.5		
	6100	KISV	20	GRF	0600	0606.4	12	8			
	500	HIRA	46	C	0604.3	0606.7	7	14	6		
	9100	GORK	20	GRF	0609.7	0611.8	15.2	9.5	3.5		
	9100	GORK	1	S	0633.6	0636.4	6.4	4	2		
	15000	KISV	1	S	0730	0736.4	15	9			
	4995	ATHN	3	S	0734.3	0736.7	8.3	43.4	13		
	10400	BERN	3		0734.7	0736.2	6	15			
	8400	BERN	3		0734.7	0736.2	6	35			
	10400	BERN	3		0734.7	0736.2	6	5			
	8400	BERN	3		0734.7	0736.2	6	13			
	2695	ATHN	3	S	0735.2	0736.6	5.6	25.5	7.8		
	8800	ATHN	3	S	0735.4	0736.5	4.8	28.4	8.5		
	3000	BERL	3	S	0735.5	0736.5	3	23			
	9500	BERL	3	S	0735.7	0736.5	1.8	17			
	2950	GORK	3	S	0735.7	0736.6	4.3	30	7		
	6100	KISV	8	S	0735	0736.3	23	26			
	5730	IRKU	2	S	0736	0736.6	6	38	8		
	9100	GORK	29	PBI	0736	0737.1	7.9	8			
	9100	GORK	1	S	0736	0736.6	1.1	23.5	11.5		
	1470	BERL	1	S	0736	0737.3	2	3.9			
	2950	GORK	1	S	0754	0754.9	3	7.8	3.2		
	9100	GORK	1	S	0845.2	0846.5	4.5	5.5	2.5		
	245	SGMR	44	NS	1034 E	1109.1	506 D	233			
	410	SGMR	43	NS	1132	1602.4	478 D	15.8			
	232	IZMI	7	C	1137.5	1138	1	500	200		
	228	HARS	48	C	1137.9	1138	4.6	600	300		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	260	ONDR	42 SER	1107	1108.5	233	152			
	245	SGMR	6 S	1222.1	1222.6	.9	270	54		
	410	SGMR	6 S	1222.1	1222.4	1	60	12		
	234	POTS	4 S/F	1233.9	1233.9	.3	175	30		
	228	HARS	8 S	1322	1322.5	1	200 D	75		
	234	POTS	4 S/F	1322.5	1322.6	.5	250	60		
	7000	SAOP	40 F	1735						
	9400	HUAN	2 S/F	2054.5	2057.2	2.7	14.5	8		L
	2800	OTTA	20 GRF	2100	2105	30	3.6	1.8		
	1415	MANI	4 S/F	2306.7	2314.1	14.6	133.4	34.5		
	2695	PENT	3 S	2306	2313.7	14	73	36		
	2695	MANI	4 S/F	2307.4	2313.6	15.4	66	21		I
	4995	BOUL	45 C	2307.5	2313	11.5	21	7		
	2695	BOUL	4 SF	2309 E	2314.5	12 D	65	22		
	530	HIRA	46 C	2310	2313.6	7	8	4		MR
	606	MANI	3 S	2311	2314.2	9.2	12.2	4.1		
	1420	BOUL	4 SF	2311.5E	2313.5	3.5D	201	67		
	2695	PENT	29 PBI	2320	2320	110 D	21			
31	9100	GORK	2 SF	0540.9	0543	2.7	9	4.5		
	9100	GORK	21 GRF	0543.5	0603.2	155	16	5		
	2950	GORK	21 GRF	0550.7	0553.4	36	6.6			
	2950	GORK	1 S	0553.4	0554.6	3.5	9			
	6100	KISV	4 S/F	0602	0608.4	13	4			
	15000	KISV	45 C	0604	0608.3	16	49			
	15000	KISV		0604	0614.3		14			
	10400	BERN	3	0606.8	0608.3	14	12			
	8400	BERN	3	0606.8	0608.3	14	8			
	10400	BERN	3	0606.8	0608.3	14	34			
	9400	BERN	3	0606.8	0608.3	14	32			
	9100	GORK	3 S	0608.4	0608.5	.6	34	17		
	9100	GORK	1 S	0614.2	0614.6	.7	7	3.5		
	9100	GORK	1 S	0635.7	0635.9	.6	9.5	4.5		
	15000	KISV	8 S	0635	0635.3	5	19			
	9100	GORK	40 F	0813.2	0836.2	35.5	16			
	15000	KISV	8 S	0823.5	0824	1	7			
	9500	BERL	3 S	0823.9	0824	1.1	12			
	15000	KISV	8 S	0835.5	0836	1	11			
	10400	BERN	1	0835.5	0836	3	3			
	8400	BERN	1	0835.5	0836	3	4			
	8400	BERN	1	0835.5	0836	3	10			
	10400	BERN	1	0835.5	0836	3	8			
	9500	BERL	1 S	0836	0836.2	1.5	10			
	3100	CRIM	25	0908	0934		13			
	202	IZMI	8 S	0930.2	0930.2	.2	125	60		
	234	POTS	8 S	0930.2	0930.2	.1	175	60		
	260	ONDR	8 S	0930.2	0930.2	.2	29			
	15000	KISV		0931	0935.3		13			
	15000	KISV	45 C	0931	0934	9	21			
	1470	BERL		0932	0934.5		6.8			
	1470	BERL	41 F	0932	0932.9	2.6	6.8			
	10400	BERN	3	0932.4	0937.7	10	6			
	8400	BERN	3	0932.4	0937.7	10	4			
	10400	BERN	3	0932.4	0937.7	10	18			
	8400	BERN	3	0932.4	0937.7	10	11			
	3100	CRIM	1	0933.5	0934	1	10	3		
	9500	BERL	1 S	0933.5	0934	1.5	10			
	9100	GORK	2 SF	0933.9	0934.1	3.3	9.5			
	3000	BERL	3 S	0934	0934.2	1	6.6			
	2950	GORK	1 S	0934.1	0934.2	1.4	3.3			
	15000	KISV	4 S/F	0950	0955.2	12	19			
	9100	GORK	20 GRF	1029.2	1029.9	9.8	6.5	2.5		
	10400	BERN	23	1100.4	1131.8	50	6			
	8400	BERN	23	1100.4	1131.8	50	10			
	8400	BERN	23	1100.4	1131.8	50	26			
	10400	BERN	23	1100.4	1131.8	50	18			
	6100	KISV	21 GRF	1105	1138	45	8			
	6100	KISV		1105	1116		7			
	7000	SAOP	40 F	1115						
	9100	GORK	20 GRF	1117.1	1119	10	9	4		
	9100	GORK	20 GRF	1129	1132	17 F	17			
	536	ONDR	43 NS	1131.5	1246.8	226	43	6		
	245	SGMR	43 NS	1230	1713.6	390 D	228			
	410	SGMR	43 NS	1230	1547.6	390 D	229			
	260	ONDR	43 NS	1230		168 D	21	7		
	9500	BERL	29 PBI	1131.5	1132	11	15			
	4995	ATHN	2 GRF	1131.6	1132.5	1.7	9.2	5.5		
	8800	ATHN	2 GRF	1131.6	1132.3	12.7	15.1	9		
	2695	ATHN	2 GRF	1131.6	1132.4	1.7	6.1	3.7		
	3000	BERL	3 S	1131.9	1132.5	2	6.6			
	2950	GORK	1 S	1131.9	1132.5	1.1	5	2.5		
	1470	BERL	1 S	1132.5	1132.7	.5	2.3			
	10400	BERN	1	1209.7	1210.1	1.5	11			
	8400	BERN	1	1209.7	1210.1	1.5	12			
	10400	BERN	1	1209.7	1210.1	1.5	4			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
1	8400	BERN	1		1209.7	1210.1	1.5	5			
	9500	BERL	1	S	1210	1210.3	.7	7.5			
	3000	BERL	1	S	1225.5	1225.6	.6	5.7			
	1470	BERL	4	S/F	1225.6	1226.5	1.4	7.8			
	2800	OTTA	21	GRF	1235	1256	90	9.4	6.8		
	9400	HUAN	20	GRF	1237	1323.7	46.7	10.6	5		G
	10400	BERN	3		1305	1307.7	9	11			
	8400	BERN	3		1305	1307.7	9	16			
	8400	BERN	3		1305	1307.7	9	44			
	10400	BERN	3		1305	1307.7	9	33			
	1415	SGMR	3	S	1305.2	1308.2	5.5	96.1	25.8		
	1420	BOUL	45	C	1306.5E	1307.5	1.5D	122	41 U		
	4995	BOUL	4	SF	1306.5U	1307.5	2 U	40	13 U		
	1470	BERL	4	S/F	1306.5	1308.5	3.5	90			
	3000	BERL	4	S/F	1306.6	1307.9	2.9	43			
	1415	ATHN	4	S/F	1306.6	1308.1	5.3	99.6	28.1		
	4995	SGMR	3	S	1306.7	1307.8	2.9	44.8	13.4		
	8800	SGMR	3	S	1306.8	1307.8	2.8	46.4	13.9		
	7000	SAOP	6	S	1307	1308	.6	53			11L
	606	SGMR	3	S	1307.1	1310.7	5.9	33.3	9.9		
	2695	ATHN	4	S/F	1307.4	1307.8	5.8	55.3	16.6		
	4995	ATHN	3	S	1307.5	1308	2.7	41.6	12.5		
	8800	ATHN	3	S	1307.5	1307.9	4.7	45.2	13.6		
	15400	SGMR	3	S	1307.6	1307.9	1.9	15.2	4.6		
	2695	SGMR	3	S	1307.7	1308.3	1.9	50.4	15.1		
	2800	OTTA	4	S/F	1307	1308	2	30	7.5		
	9500	BERL	8	S	1308.1	1308.4	.6	25			
	2695	BOUL	4	SF	1309 E	1309.5	1.5D	65	22 U		
	113	PDTS	41	F	1346.9	1344.9	3.7	150	2		
	33	UPIC	45	C	1347.5	1347.8	1.3				
	29	UPIC	45	C	1347.8	1348.2	1.5				
	2800	OTTA	23	GRF	1505	1706	250	11.4	5.5		
	2800	OTTA	1	S	1513	1514	2	4	2		
	10400	BERN	23		1553.6	1555.1	6	3			
	8400	BERN	23		1553.6	1555.1	6	4			
	8400	BERN	23		1553.6	1555.1	6	11			
	10400	BERN	23		1553.6	1555.1	6	8			
	9400	HUAN	20	GRF	1656.8	1802.3	65.5	7.5	4.2		L
	4995	SGMR	20	GRF	1657.7	1715.1	38.3	12.3	6.2		
	2695	SGMR	20	GRF	1658.9	1715.1	35.1	3.5	1.7		
	8800	SGMR	45	C	1710	1737		15.6			
	8800	SGMR	45	C	1710	1715.5	53.1	12.3	7.6		
	15400	SGMR	20	GRF	1711	1713.6	34.3	8.8	4.4		
	2800	OTTA	20	GRF	1943	2313	110	8.6	4.3		
	9400	HUAN	20	GRF	1957.7	2116.5	78.8	12.1	6.3		L
	2800	OTTA	3	S	2206	2207	2	17.6	9.4		
	4995	BOUL	8	S	2206	2206.5	1	14	11		
	2695	BOUL	4	SF	2207 F	2207.5	1 D	40	13		
	2800	OTTA	29	P3I	2208	2208	4	3.4	1.7		
	2695	PENT	21	GRF	2315	2421	130	8.6	4.3		
	4995	BOUL	45	C	2317	2323	5	242	61		
	8800	MANI	4	S/F	2318	2320.2U	1 D	236.8U	70 U		WER
	2695	MANI	4	S/F	2318	2320.2U	1 D	158.4U	50 U		TAGE
	2695	PENT	40F	C	2318	2319.5	9	140	35		
	2695	BOUL	45	C	2319 E	2320	3.5D	184	61		
	9400	NAGO	22	GRF	2320	2325	20	21			

Reports received from the following observatories:

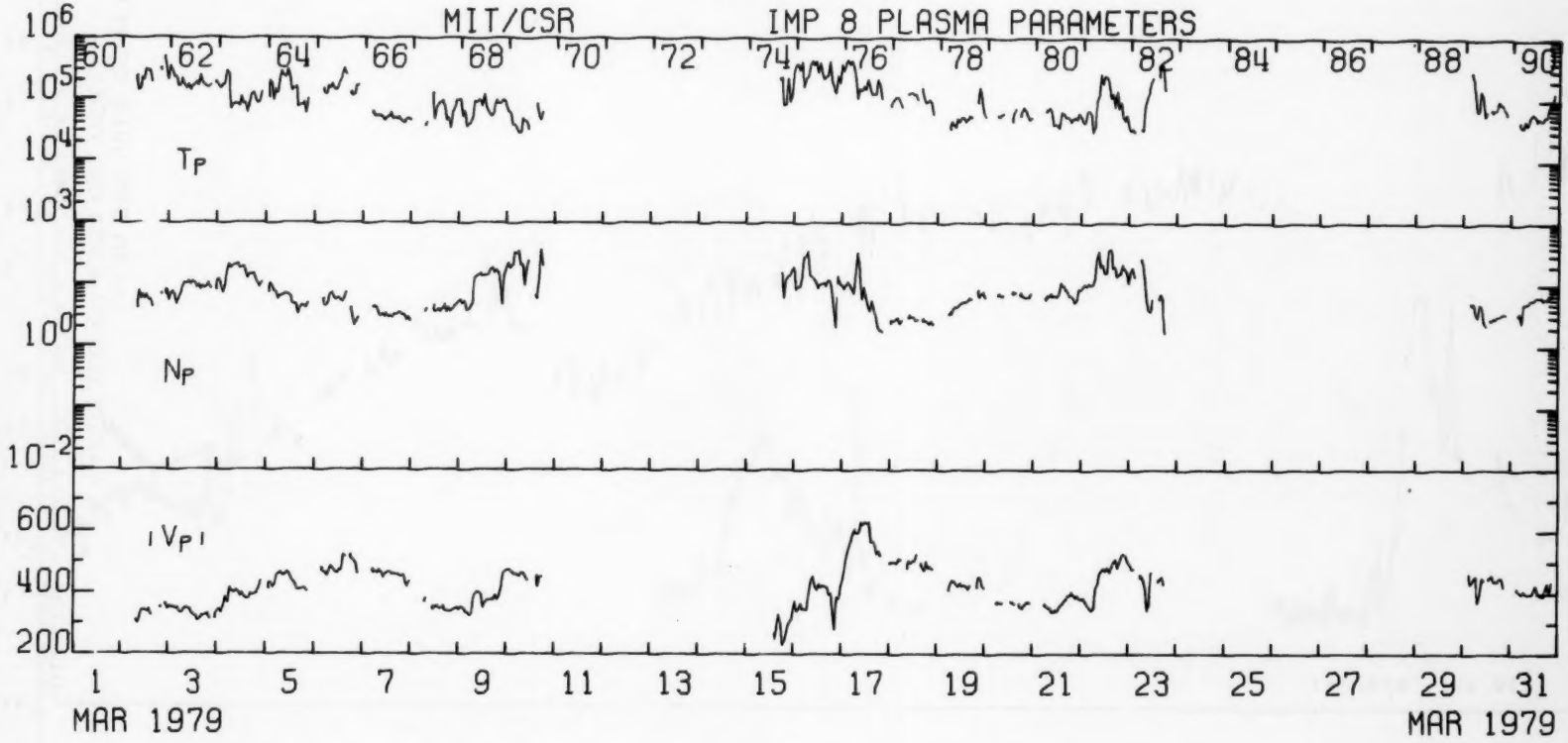
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
VORO = Voroshilov (Ussurisk)

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

IMP 8 SOLAR WIND PLASMA

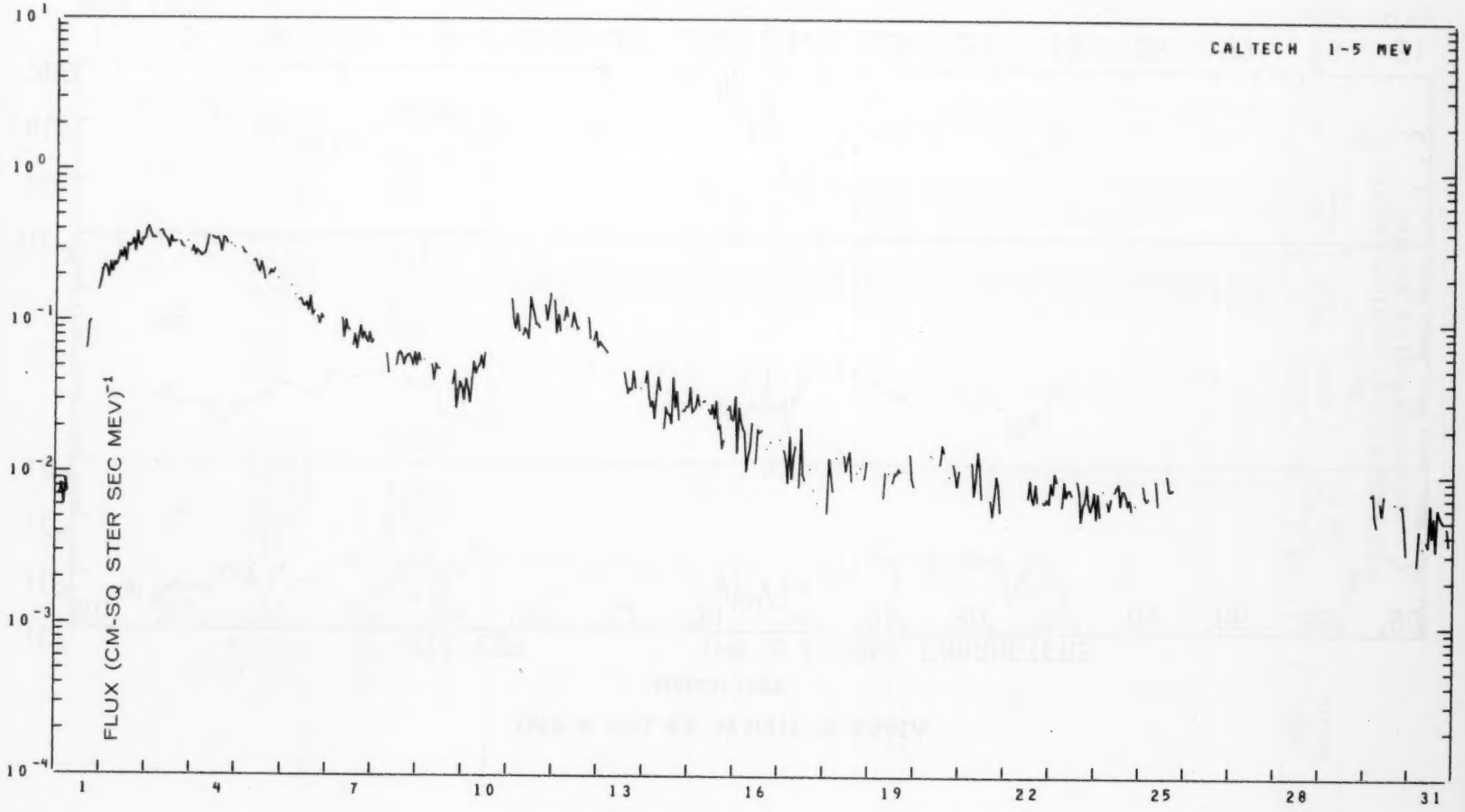
MARCH 1979



29 Mar 79

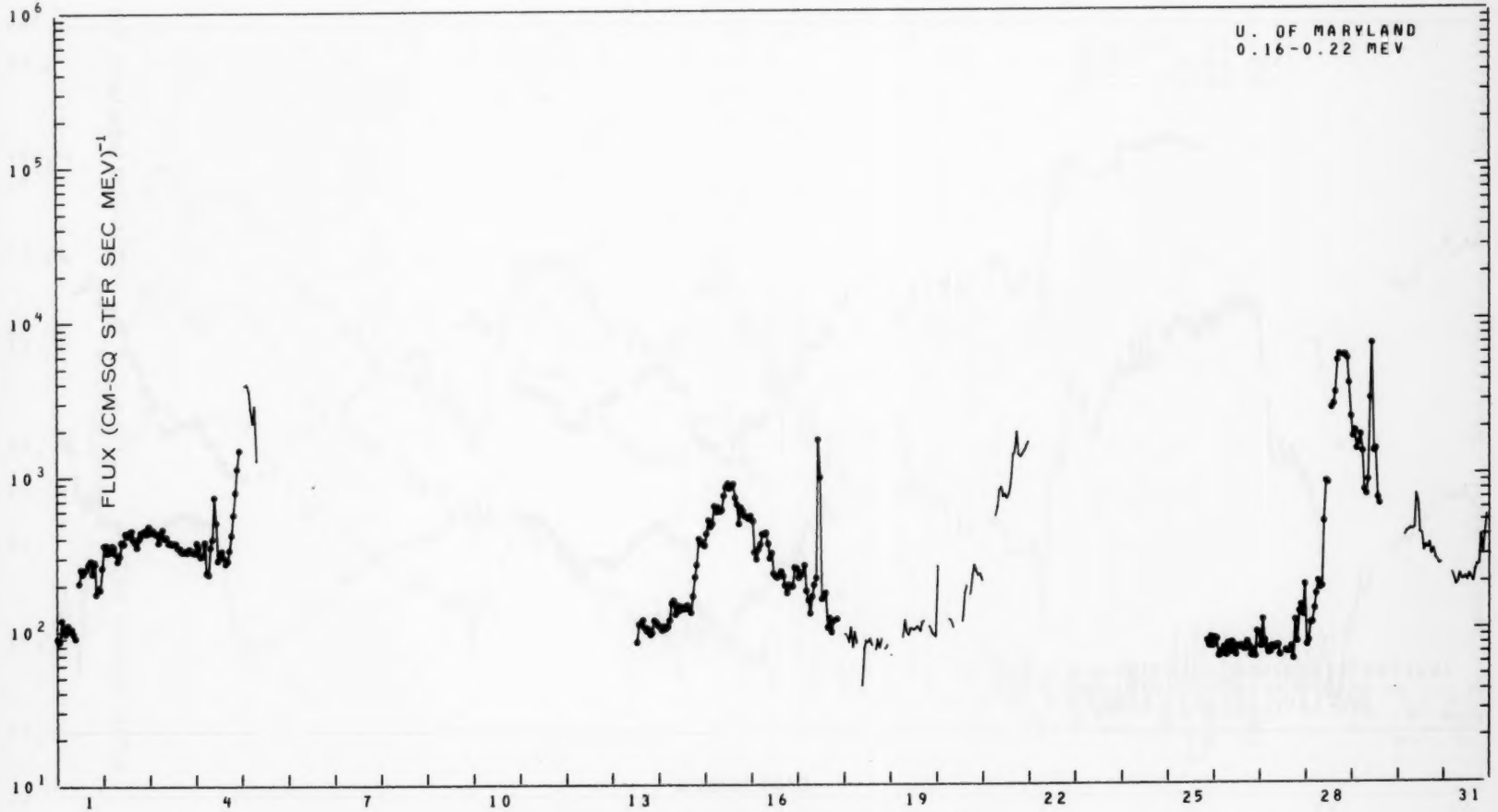
IMP 8 ELECTRONS

MARCH 1979



IMP 8 LOW ENERGY PROTONS

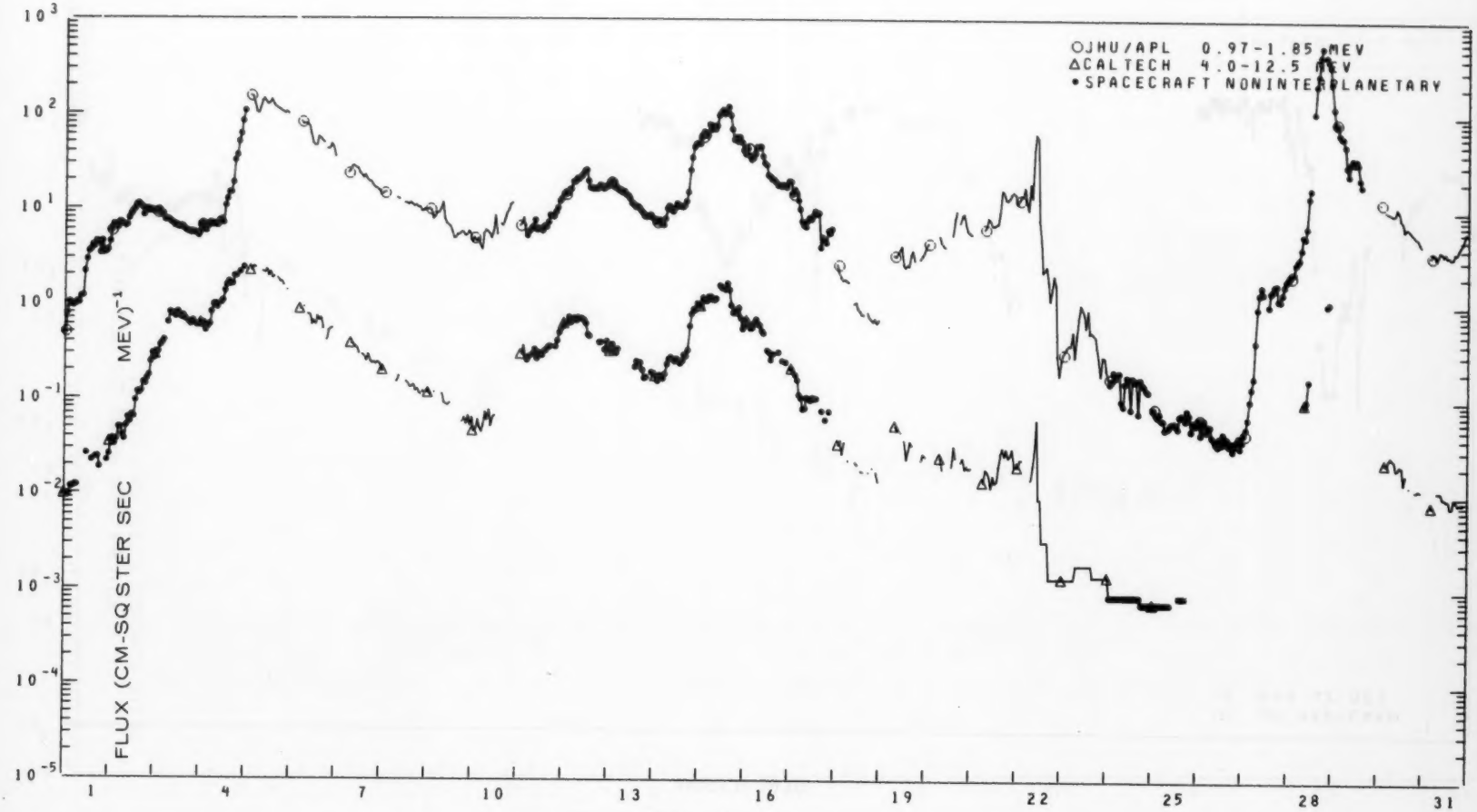
MARCH 1979



31 Mar 79

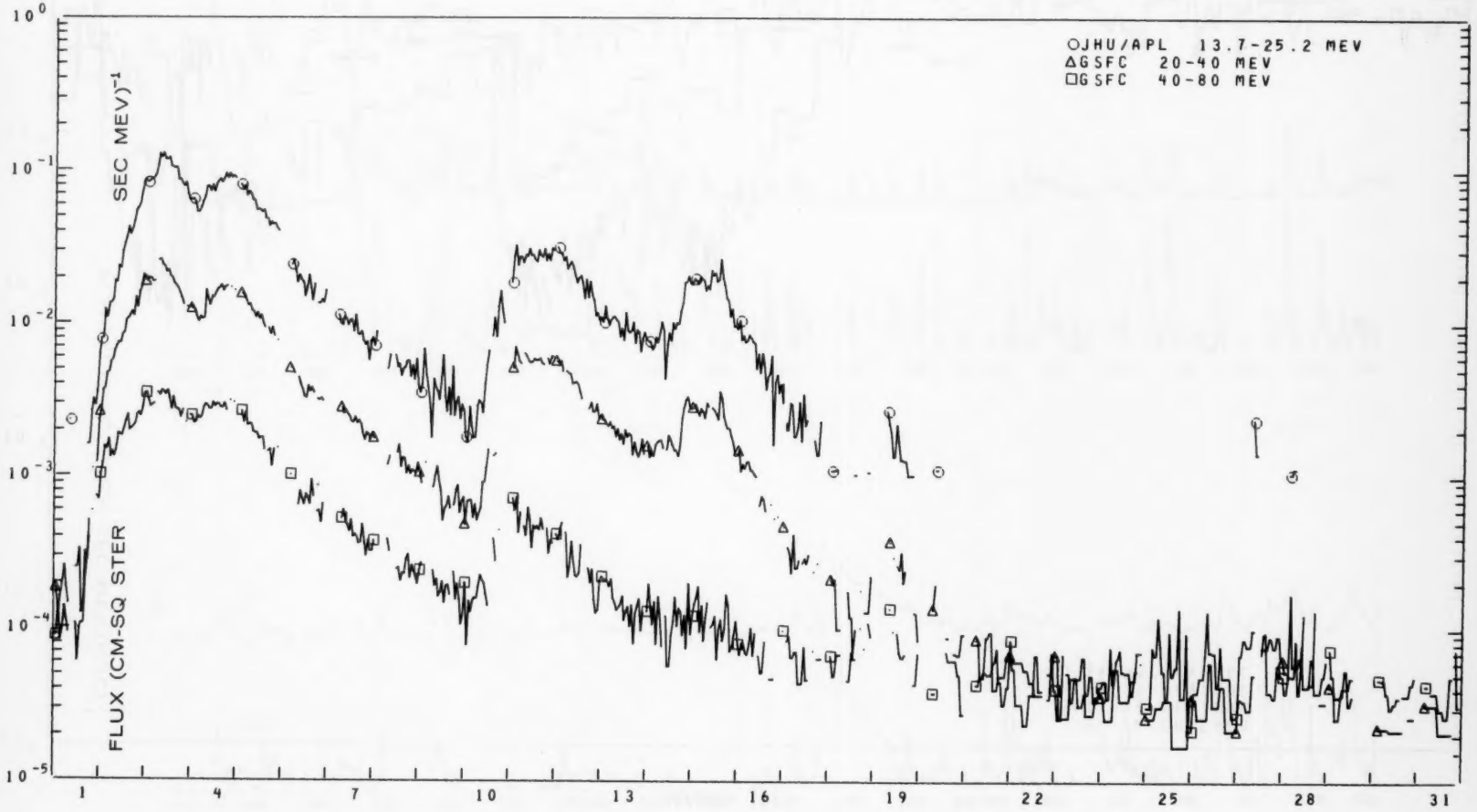
IMP 8 INTERMEDIATE ENERGY PROTONS

MARCH 1979



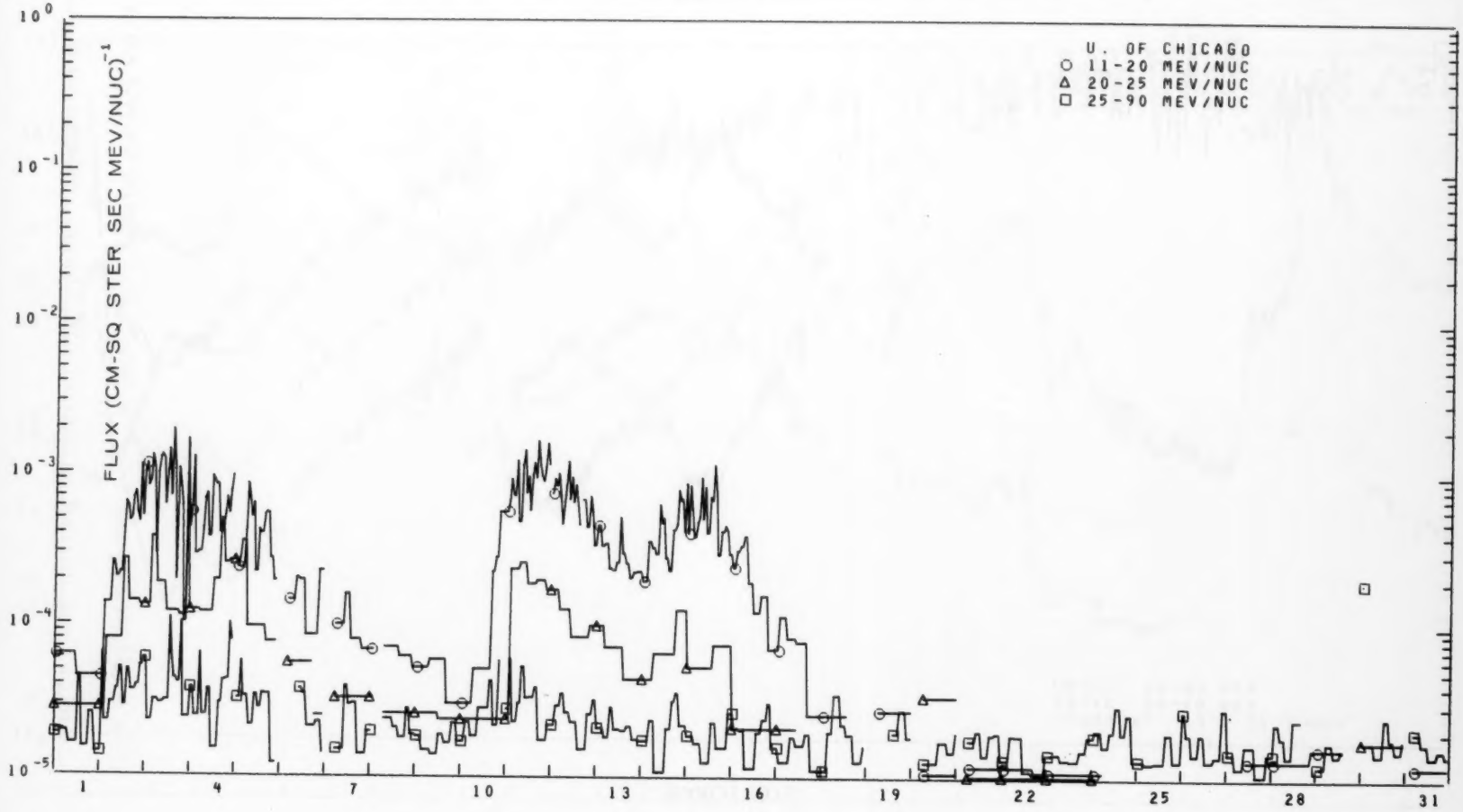
IMP 8 HIGH ENERGY PROTONS

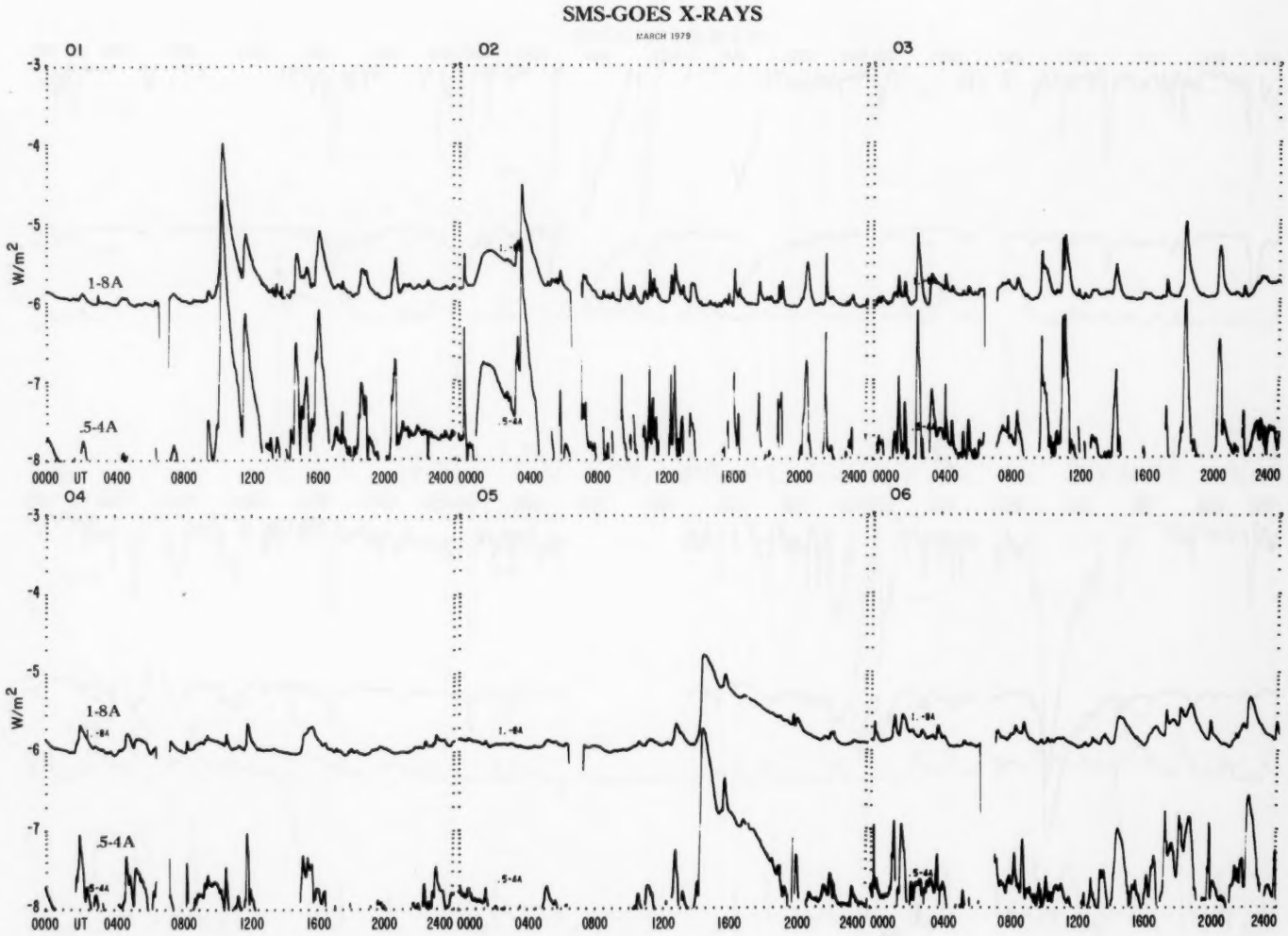
MARCH 1979



IMP 8 ALPHA PARTICLES

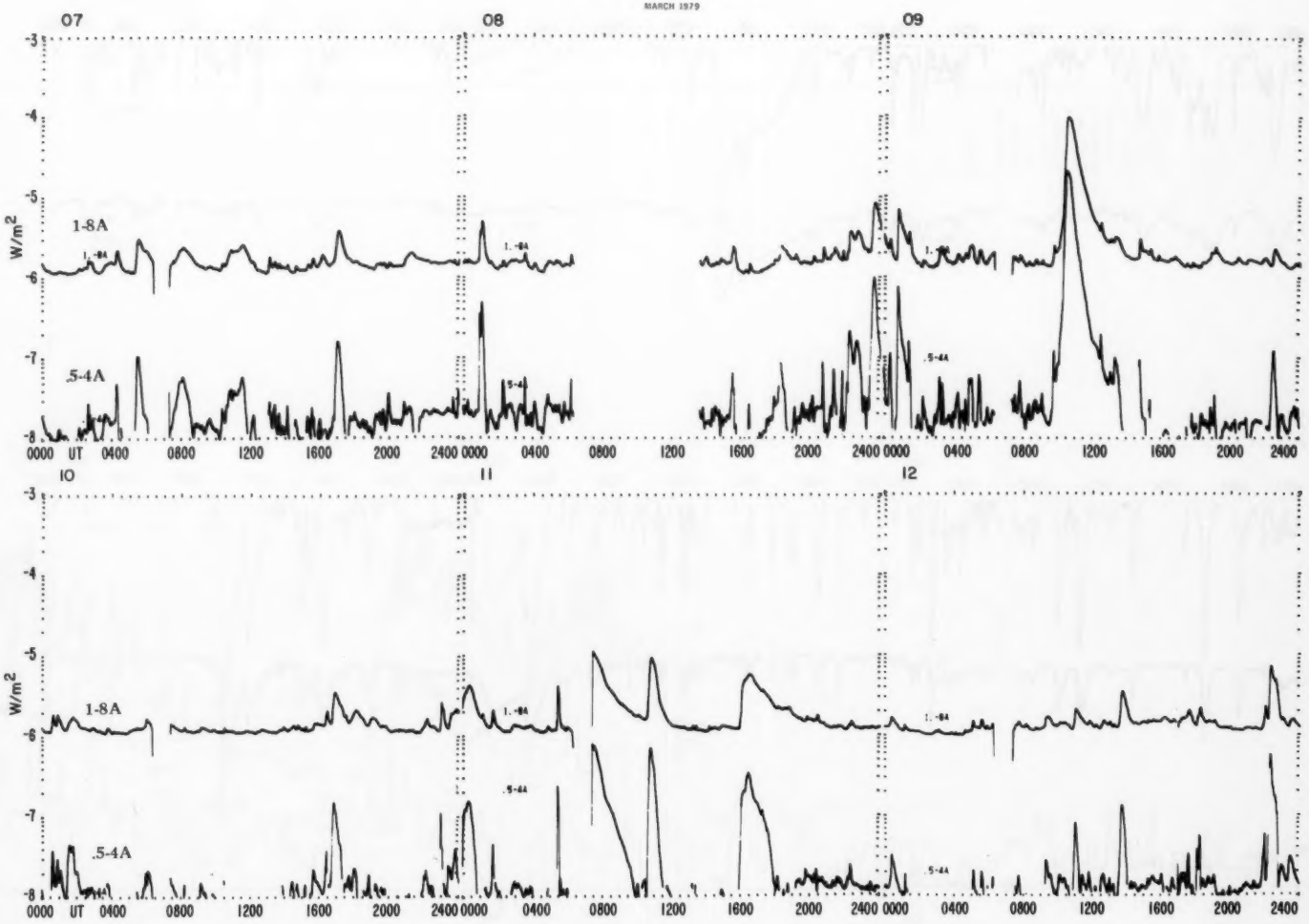
MARCH 1979

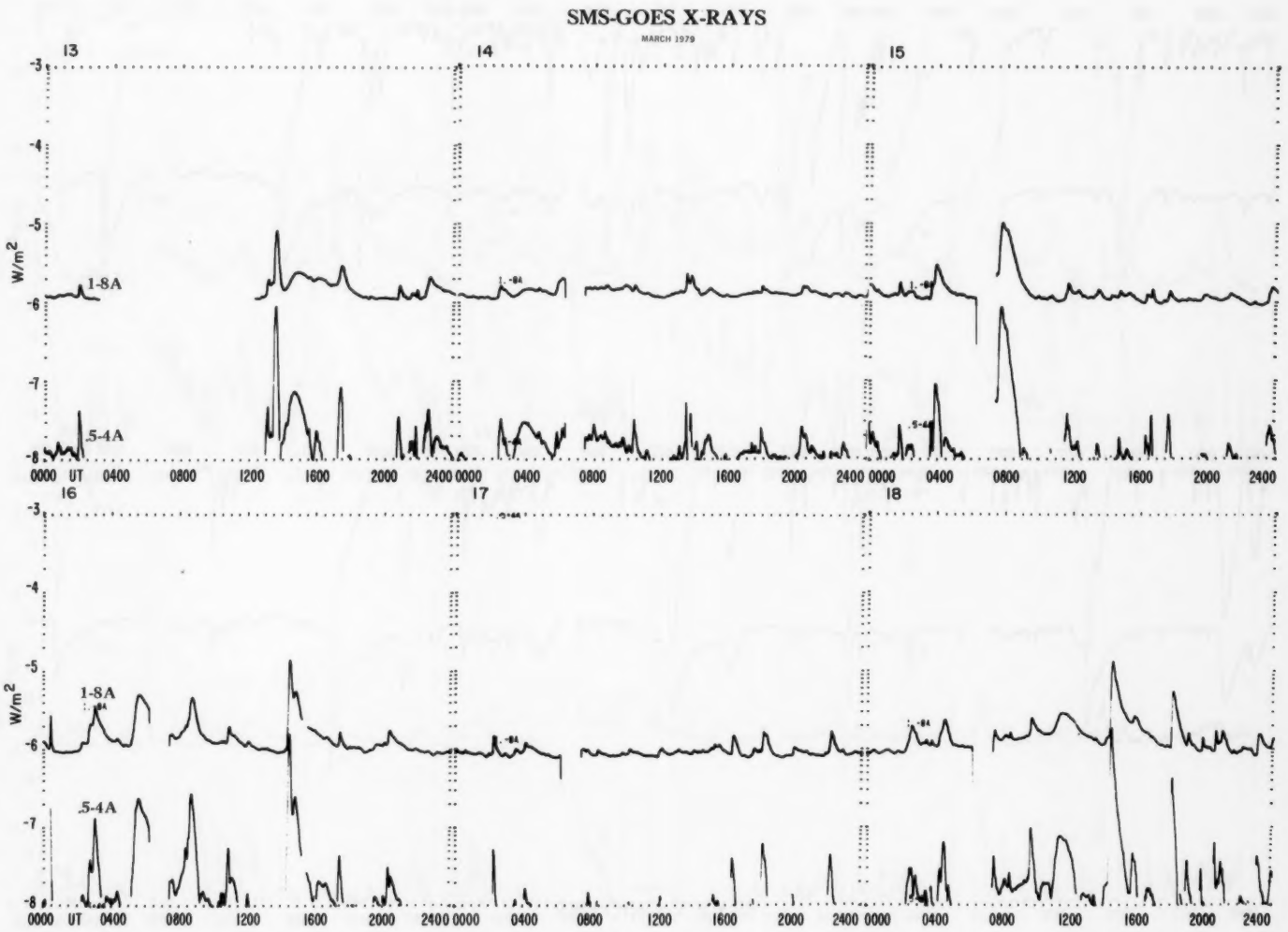


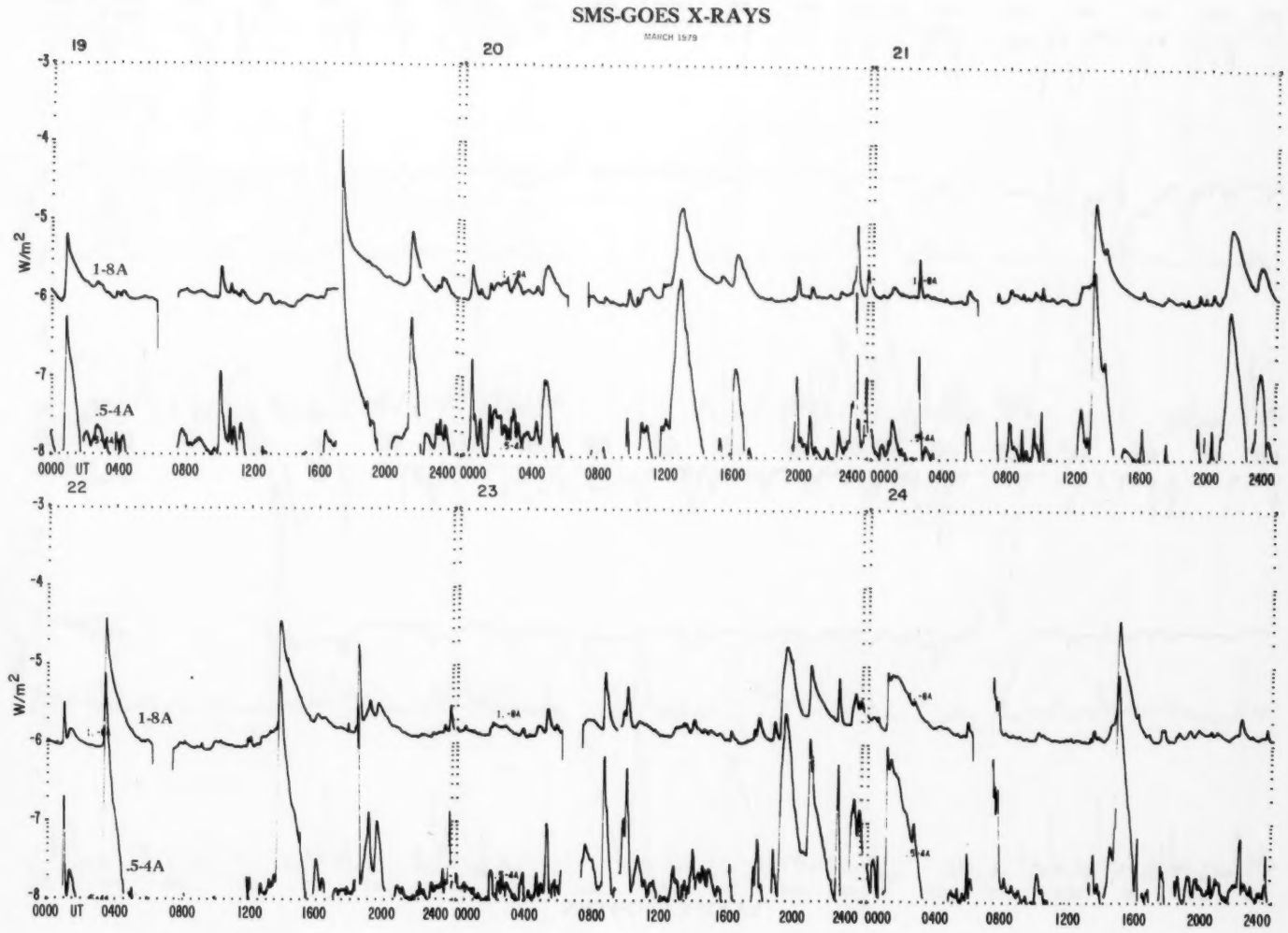

SMS-GOES X-RAYS
MARCH 1979
01
02
03
04
05
06
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400

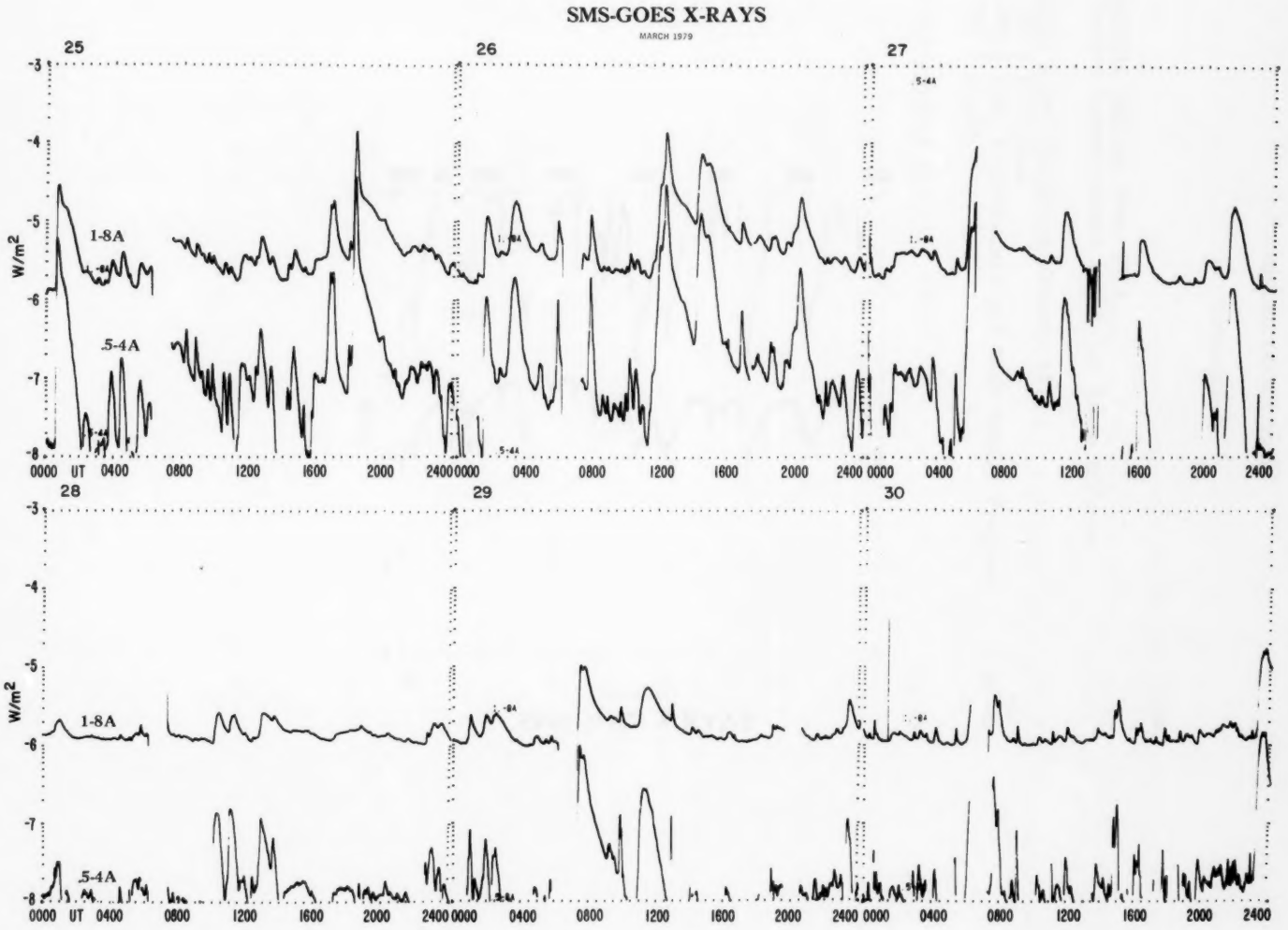
SMS-GOES X-RAYS

MARCH 1979




SMS-GOES X-RAYS
MARCH 1979
13
14
15
16
17
18
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400


SMS-GOES X-RAYS
MARCH 1979
19
20
21
22
23
24
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400


SMS-GOES X-RAYS
MARCH 1979
25
26
27
28
29
30
1-8A
.5-4A
W/m2
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400 0000 0400 0800 1200 1600 2000 2400

SMS-GOES X-RAYS
MARCH 1979
31
-3
-4
-5
-6
-7
-8
W/m²
1-8A
.5-4A
0000 UT
0400
0800
1200
1600
2000
2400

SGD 421 Part II (Comprehensive)

MISCELLANEOUS DATA

Contents

	Page
Geomagnetic Indices June 1979	
Sudden Commencements and Solar Flare Effects	42
Energetic Solar Particles January 1979	
IMP 8 Electrons	43
IMP 8 Low, Intermediate and High Energy Protons	44-46
IMP 8 Alpha Particles	47
Solar-Terrestrial Activity 1978	49-53

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JUNE 1979

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-News nr. 16.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

06 1927 A: SOD DOB NUR ESK WNG WIT HAD DOU VIC HRB MMB EBR FRD
HAZ KSA KNY QUE CZT KGL DUM; B: NGK KAK; C: KNY

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

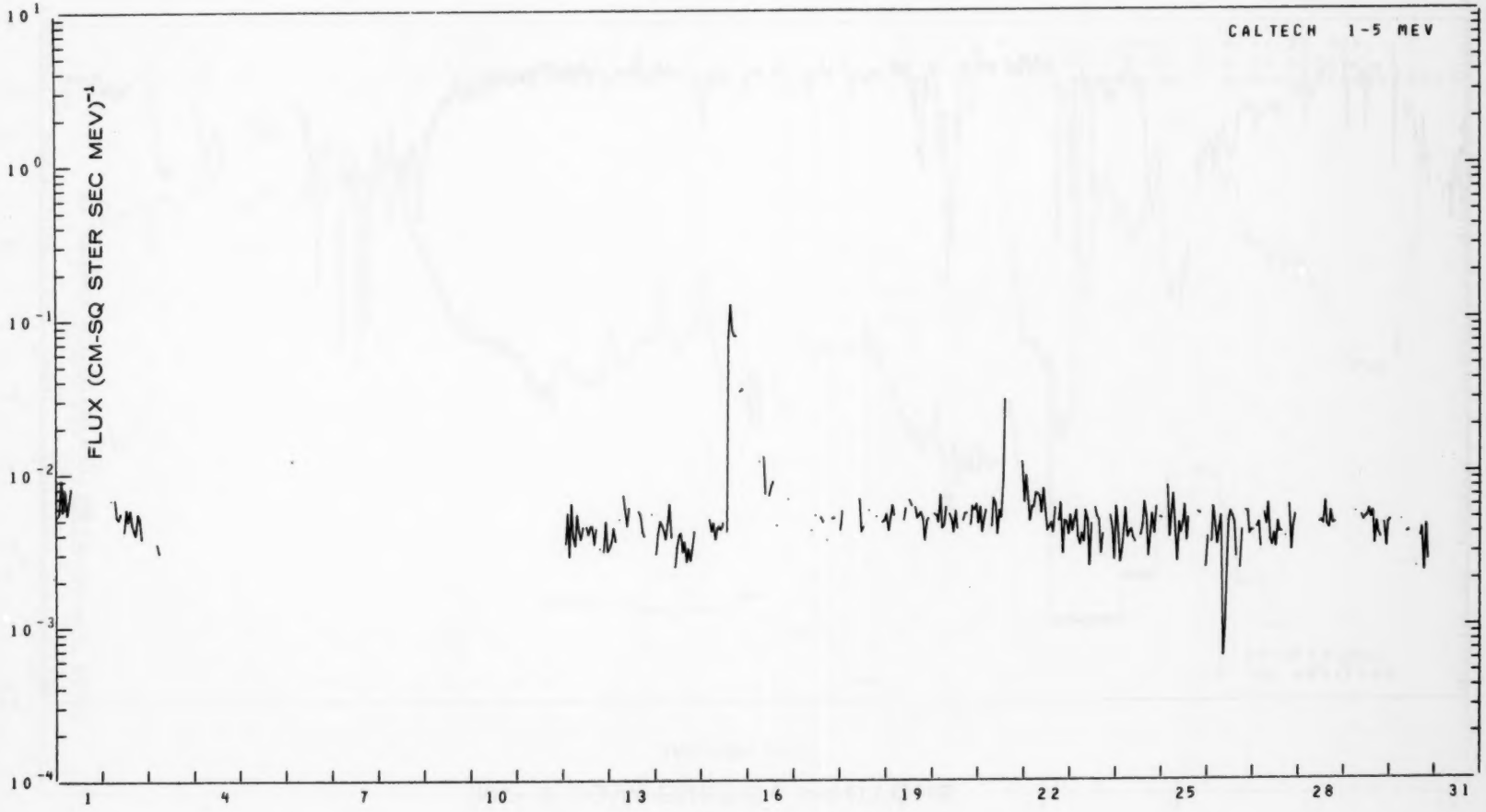
03	1432 - 1438	HAZ				
04	0348 - 0418	MMB	KAK	HAZ	KNY	
05	0508 - 0640	MMB	EBR?	KAK	HAZ	KNY
10	0858 - 0938	HAZ				
17	0513 - 0547	NGK	EBR?			
17	0943 - 0959	NGK				
18	0623 - 0630	HAZ				
20	1237 - 1304	NGK	(bs:	A:	KSA)	
25	1008 - 1026	QUE				

Very unusual events

none

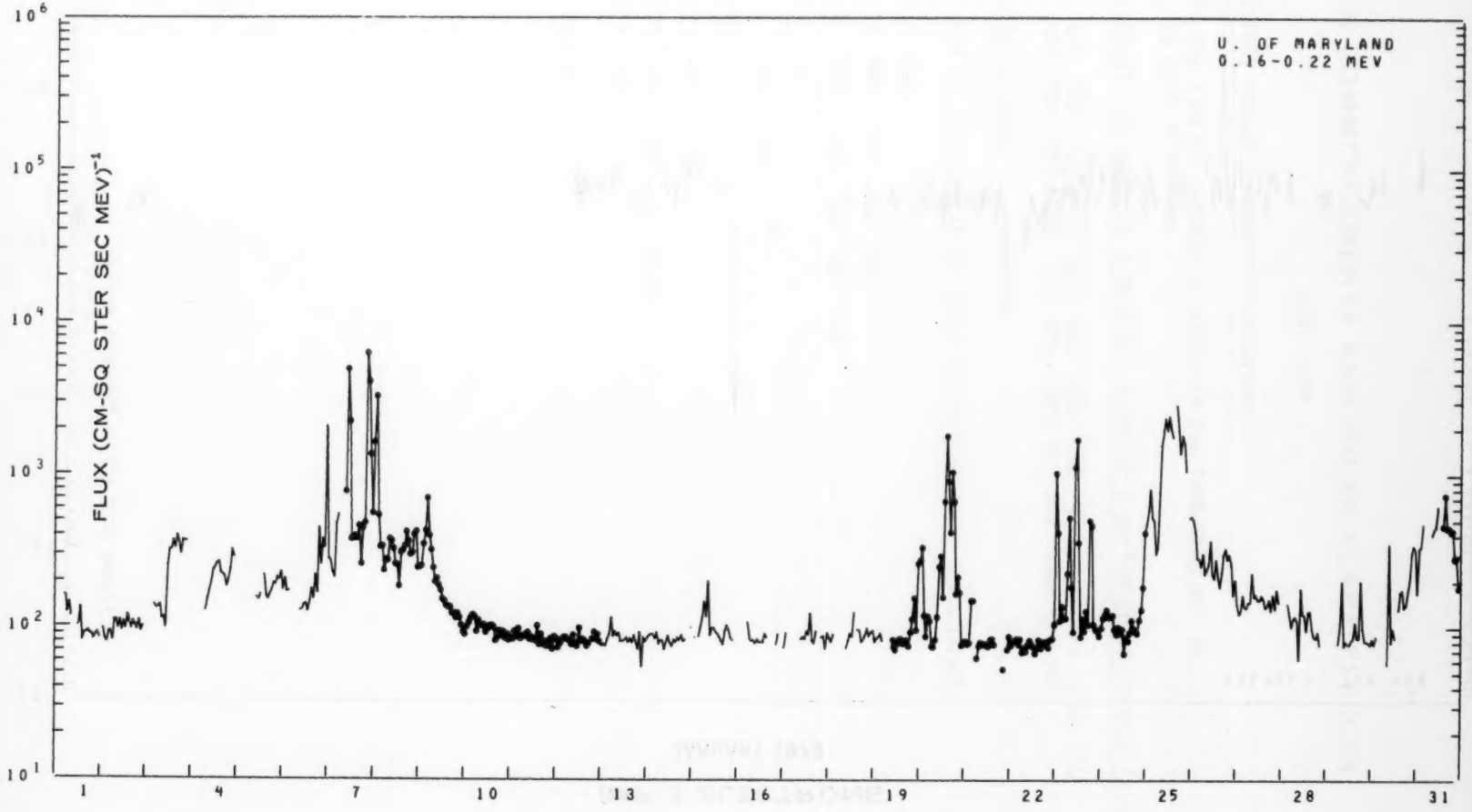
IMP 8 ELECTRONS

JANUARY 1979



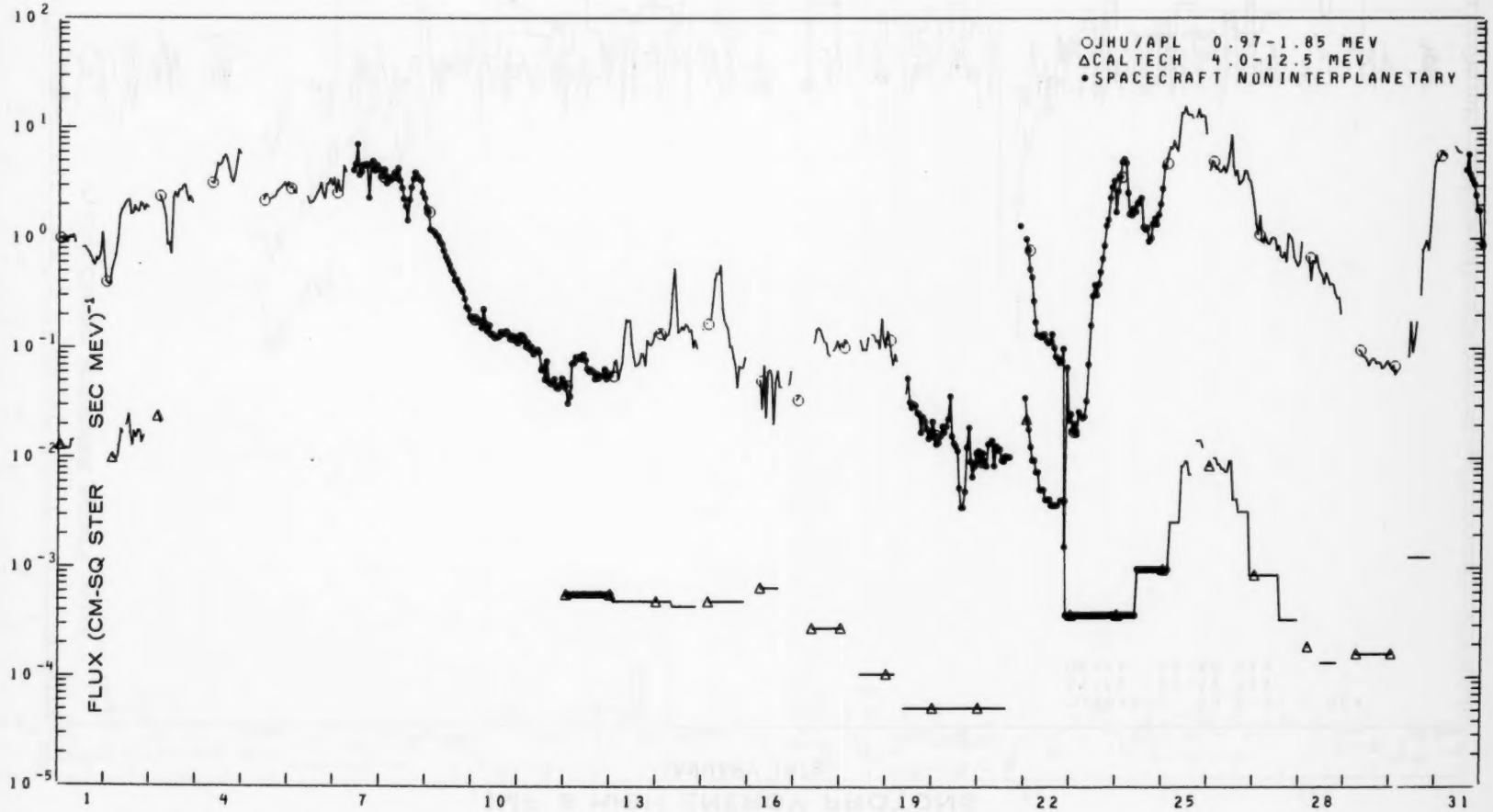
IMP 8 LOW ENERGY PROTONS

JANUARY 1979



IMP 8 INTERMEDIATE ENERGY PROTONS

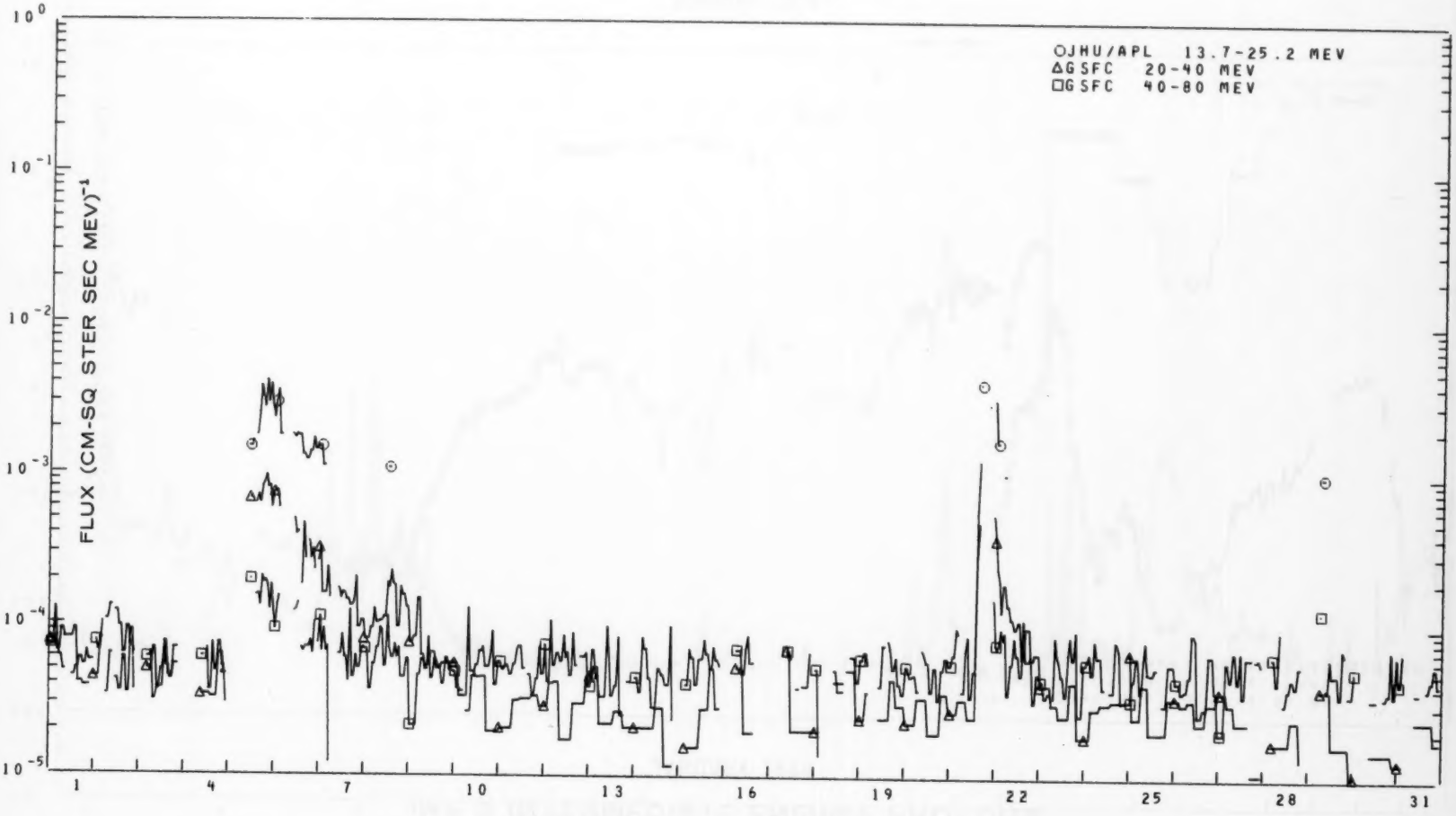
JANUARY 1979



45
Misc
Jan 79

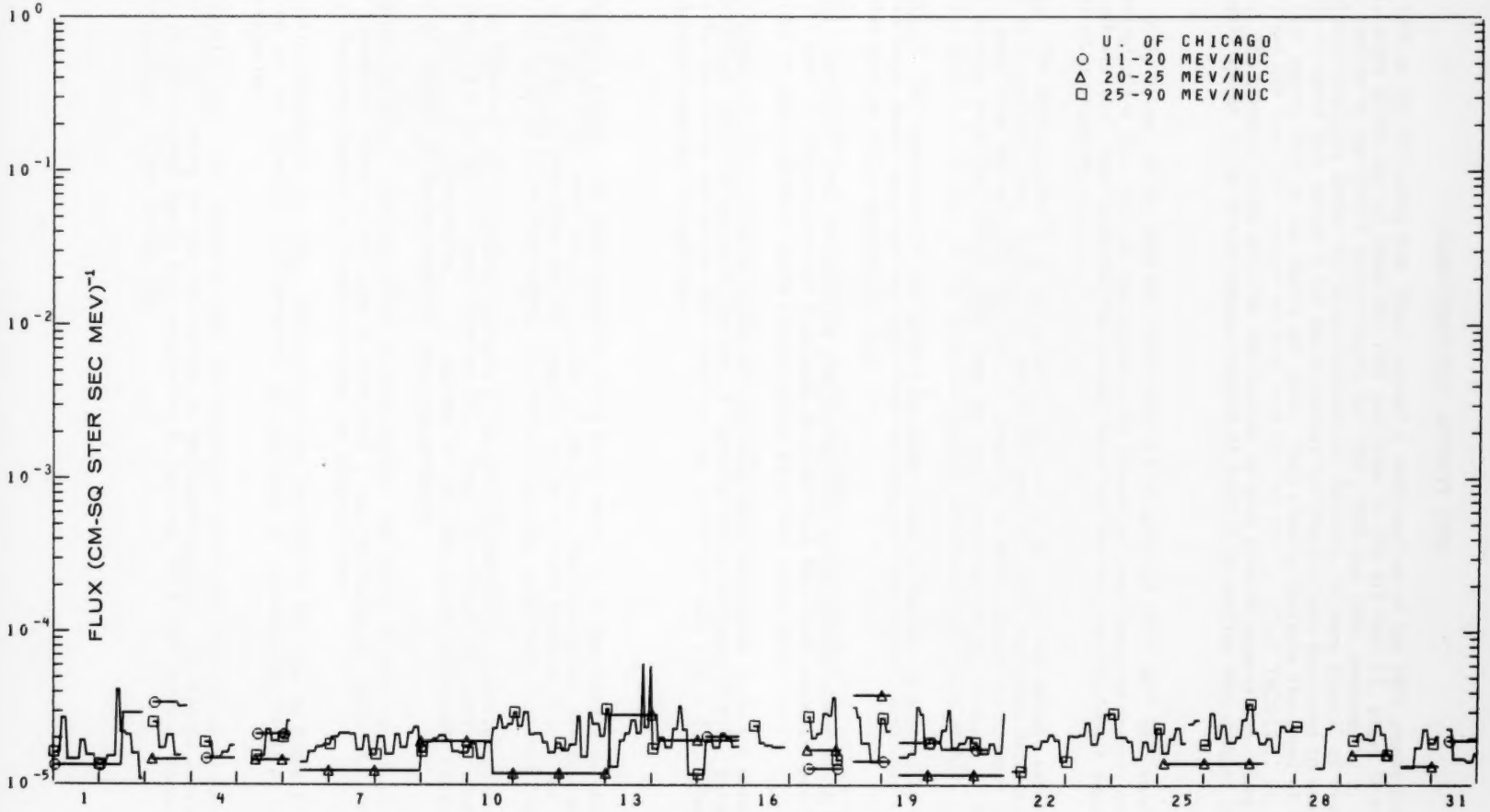
IMP 8 HIGH ENERGY PROTONS

JANUARY 1979



IMP 8 ALPHA PARTICLES

JANUARY 1979



SOLAR-TERRESTRIAL ACTIVITY 1978

The charts for 1978 on the following four pages present a continuation of the 1976 graphs published in SGD 414 Part II, pages 62-65, and of those for 1977 published in SGD 415 Part II, pages 78-81. Each diagram here is similar to the STAC-A Yearly Charts for 1967, 1968 and 1969, prepared by T. Obayashi of the Interdisciplinary Analysis Center for Solar-Terrestrial Activity, Science Council of Japan. Observations available in World Data Center A for Solar-Terrestrial Physics have been used to construct these 1978 graphs in half yearly form on two charts per year. They clearly indicate the trend of increasing solar activity since the June 1976 sunspot minimum, and one can easily select individual days of outstanding events. The comments below describe the sources of each kind of observation. Completed diagrams for 1979 will appear in the Miscellaneous section of Part II no earlier than June of 1980.

Graph 1

2800 MHz Flux: Daily values of the 2800 MHz solar flux (S) in units of 10^{-22} Wm^{-2} Hz^{-1} were furnished by A.E. Covington and M.B. Bell of the Astrophysics Branch National Research Council of Canada, Ottawa. Each vertical line indicates the largest burst of the day, and its length equals the square root of the peak flux.

1-8 Å X-Ray Flux: The burst intensity of the solar x-ray flux in Wm^{-2} for the largest event of the day is plotted as a vertical line. Both solid and dashed vertical lines represent data acquired by the GOES satellites and were provided by R.F. Donnelly of NOAA's Space Environment Laboratory. The dashed entries highlight values taken from the *Preliminary Report and Forecast of Solar Geophysical Data* that G.R. Heckman of the Space Environment Laboratory publishes weekly.

Hα Flare Importance: The importance of the largest Hα solar flare of the day is plotted as a vertical line. Solid lines denote observations taken from the grouped flare reports published in the Comprehensive part of *Solar-Geophysical Data*.

IMP 8 Proton Flux: Vertical lines indicate the peak proton flux to the nearest power of 10 in cm^{-2} sr^{-1} s^{-1} MeV^{-1} as observed by IMP 8 between 19.8 and 40.1 MeV. F.B. McDonald and T.T. von Rosenvinge of NASA's Goddard Space Flight Center furnished these data.

Solar Wind Bulk Speed: The plotted daily values of the solar wind bulk speed in km s^{-1} were estimated from the graphical data provided by H. Bridge, A. Lazarus and J. Sullivan of MIT. Values shown here emphasize the minima and maxima that occur on time scales of less than a day. They do not represent a strict average for each day.

Graph 2

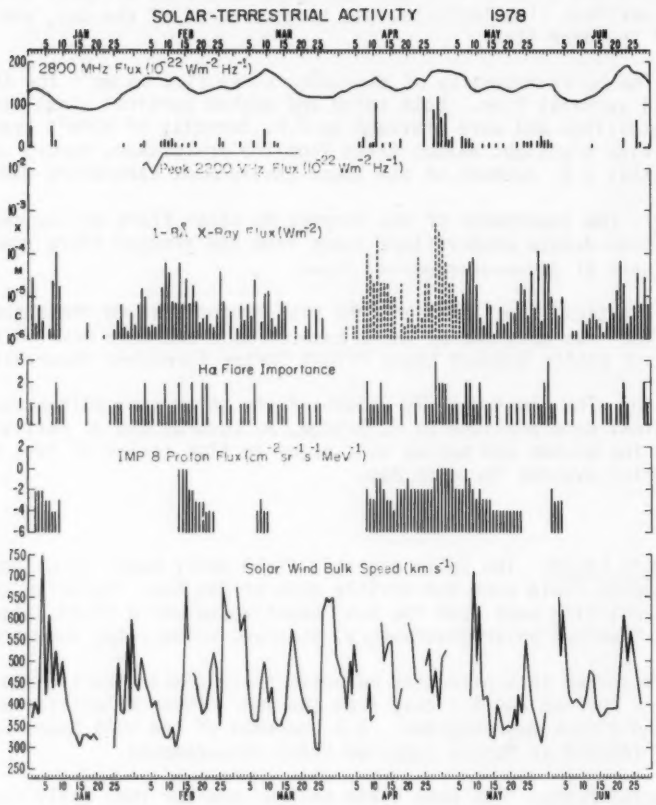
Stanford Mean Magnetic Field: The solar magnetic field daily means in μT represent a weighted average of the net magnetic field over the visible disk of the Sun. Positive values denote a mean solar magnetic field pointing away from the Sun; negative values a field directed toward the Sun. P.H. Sherrer of the Stanford Solar Observatory, Stanford University, submitted these observations.

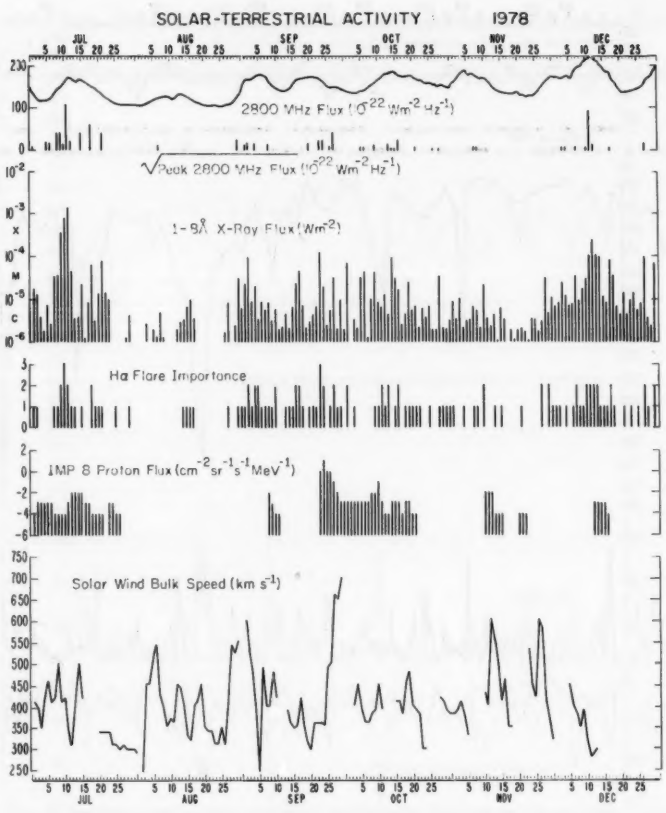
Inferred IMF: The inferred interplanetary magnetic field (IMF) direction is indicated as a horizontal bar: T = toward the Sun and A = away from the Sun. These polarities were derived from variations on the Thule and Vostok magnetograms. G.R. Heckman of the NOAA Space Environment Laboratory and S. Mansurov of IZMIRAN in Moscow supplied these measurements.

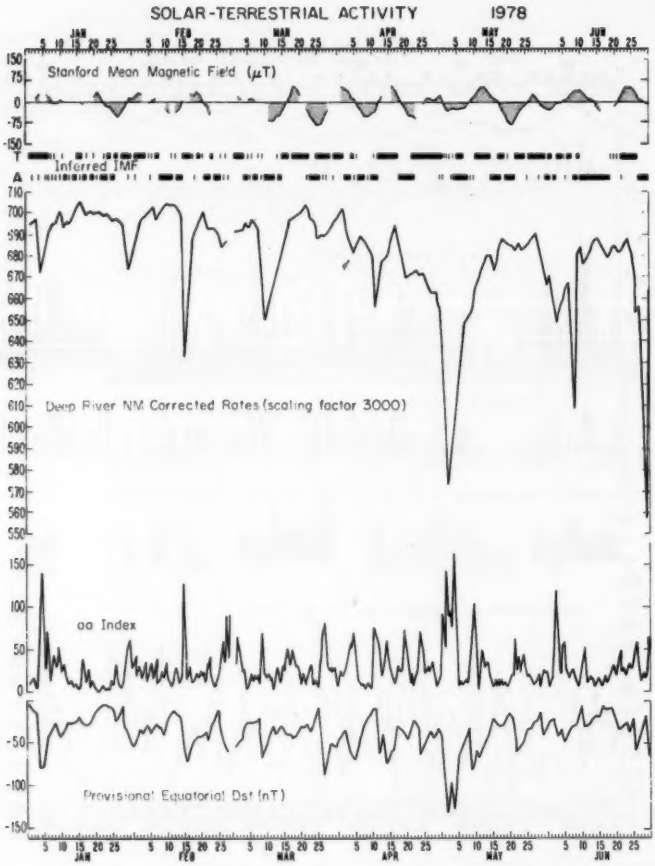
Deep River NM Corrected Rates: The Deep River Neutron Monitor (NM) daily average counting rates corrected for barometric pressure have been plotted with a scaling factor of 3000. M.D. Wilson of the National Research Council of Canada provided the original data.

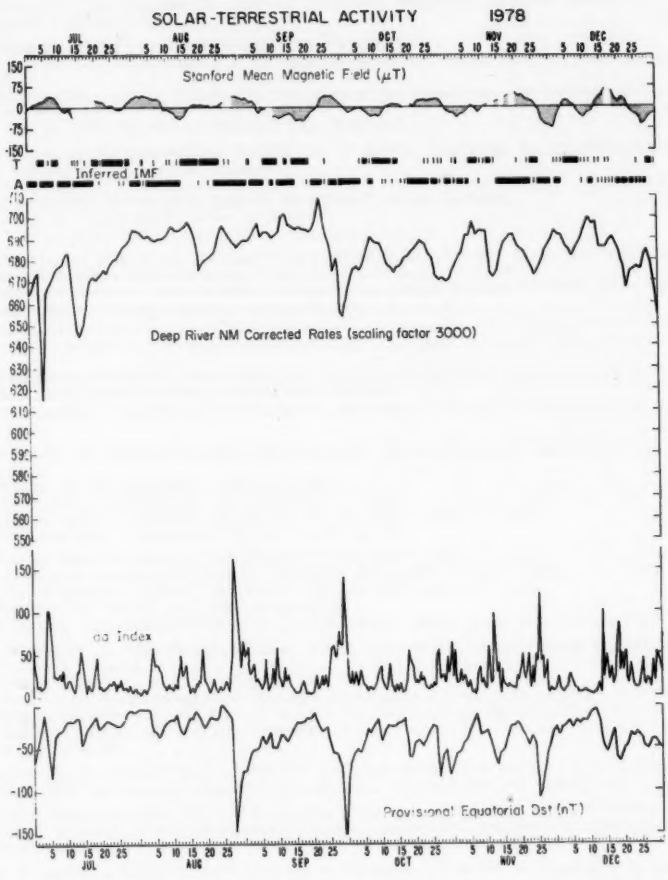
aa Index: The daily geomagnetic *aa* index furnished by the Institut de Physique du Globe in Paris, was computed from the 3-h K indices (converted to the amplitude of the magnetic field) at two antipodal observatories.

Provisional Equatorial Dst: This magnetic index characterizes quiet-time and storm-time variations in the geomagnetic field owing to the ring current in the magnetosphere. The charts show daily averages of the provisional hourly Dst prepared by M. Sugiura, NASA GSFC and D.J. Poros, Computer Sciences Corporation, Silver Spring, MD.


SOLAR-TERRESTRIAL ACTIVITY 1978
JAN
FEB
MAR
APR
MAY
JUN
2800 MHz Flux (10^{-22} Wm^{-2} Hz^{-1})
Peak 2800 MHz Flux (10^{-22} Wm^{-2} Hz^{-1})
1-8Å X-Ray Flux(Wm^{-2})
Hα Flare Importance
IMP 8 Proton Flux(cm^{-2}sr^{-1}s^{-1}MeV^{-1})
Solar Wind Bulk Speed (km s^{-1})


SOLAR-TERRESTRIAL ACTIVITY 1978
JUL
AUG
SEP
OCT
NOV
DEC
2800 MHz Flux (10^{-22} Wm^{-2} Hz^{-1})
√Peak 2800 MHz Flux (10^{-22} Wm^{-2} Hz^{-1})
1-8Å X-Ray Flux (Wm^{-2})
X
M
C
Hα Flare Importance
IMP 8 Proton Flux (cm^{-2} sr^{-1} s^{-1} MeV^{-1})
Solar Wind Bulk Speed (km s^{-1})


SOLAR-TERRESTRIAL ACTIVITY 1978
JAN
FEB
MAR
APR
MAY
JUN
Stanford Mean Magnetic Field (μT)
T
Inferred IMF
A
Deep River NM Corrected Rates (scaling factor 3000)
aa Index
Provisional Equatorial Dst (nT)


SOLAR-TERRESTRIAL ACTIVITY 1978
JUL
AUG
SEP
OCT
NOV
DEC
Stanford Mean Magnetic Field (μT)
Inferred IMF
Deep River NM Corrected Rates (scaling factor 3000)
aa Index
Provisional Equatorial Dst (nT)

UAG Series of Reports

UAG Reports are issued on an irregular basis, with 6 to 12 reports being issued each year. Subscriptions may be ordered through the National Geophysical and Solar-Terrestrial Data Center, Environmental Data and Information Service, NOAA, Boulder, CO 80303, USA. The annual subscription price is $25.20 ($17.30 additional for foreign mailing). In years when the single price copies are less than $25.20, arrangements will be made to extend the subscription duration. Single issues are also available at the prices shown below. Some of the issues are now out of print and are available only on microfiche. Orders must include check or money order payable in U.S. currency to the Department of Commerce, NOAA/NGSDC. $2.00 handling charge per order.

UAG-1 "IQSY Night Airglow Data", price $1.75.
UAG-2 "A Reevaluation of Solar Flares, 1964-1966", price 30 cents.
UAG-3 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-41 MHz, 6 July 1966 through 8 September 1968", microfiche only, price 45 cents.
UAG-4 "Abbreviated Calendar Record 1966-1967", price $1.25.
UAG-5 "Data on Solar Event of May 23, 1967 and its Geophysical Effects", price 65 cents.

UAG-6 "International Geophysical Calendars 1957-1969", price 30 cents.
UAG-7 "Observations of the Solar Electron Corona: February 1964-January 1968", price 15 cents.
UAG-8 "Data on Solar-Geophysical Activity October 24-November 6, 1968", price (includes Parts 1 & 2) $1.75.
UAG-9 "Data on Cosmic Ray Event of November 18, 1968 and Associated Phenomena", price 55 cents.
UAG-10 "Atlas of Ionograms", price $1.50.

UAG-11 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).
UAG-12 "Solar-Geophysical Activity Associated with the Major Geomagnetic Storm of March 8, 1970", price (includes Parts 1-3) $3.00.
UAG-13 "Data on the Solar Proton Event of November 2, 1969 through the Geomagnetic Storm of November 8-10, 1969, price 50 cents
UAG-14 "An Experimental, Comprehensive Flare Index and Its Derivation for 'Major' Flares, 1955-1969", price 30 cents.
UAG-15 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).

UAG-16 "Temporal Development of the Geographical Distribution of Auroral Absorption for 30 Substorm Events in each of IQSY (1964-65) and IASY (1969)", price 70 cents.
UAG-17 "Ionospheric Drift Velocity Measurements at Jicamarca, Peru (July 1967-March 1970)", microfiche only, price 45 cents.
UAG-18 "A Study of Polar Cap and Auroral Zone Magnetic Variations", price 20 cents.
UAG-19 "Reevaluation of Solar Flares 1967", price 15 cents.
UAG-20 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).

UAG-21 "Preliminary Compilation of Data for Retrospective World Interval July 26 - August 14, 1972", price 70 cents
UAG-22 "Auroral Electrojet Magnetic Activity Indices (AE) for 1970", price 75 cents.
UAG-23 "U.R.S.I. Handbook of Ionogram Interpretation and Reduction, Second Edition, November 1972", edited by W. R. Piggott and K. Rawer, NGSDC/EDS/NOAA, November 1972, 324 pages, price $1.75.

UAG-23A "U.R.S.I. Handbook of Ionogram Interpretation and Reduction, Second Edition, November 1972", Revision of Chapters 1-4, edited by W. R. Piggott and K. Rawer, NGSDC/EDS/NOAA, July 1978, 135 pages, price $2.14.

UAG-24 "Data on Solar-Geophysical Activity Associated with the Major Ground Level Cosmic Ray Events of 24 January and 1 September 1971", price (includes Parts 1 and 2) $2.00.
UAG-25 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-41 MHz, 9 September 1968 through 9 December 1971", price 35 cents.

UAG-26 "Data Compilation for the Magnetospherically Quiet Periods February 19-23 and November 29 - December 3, 1970", price 70 cents.
UAG-27 "High Speed Streams in the Solar Wind", price 15 cents.
UAG-28 "Collected Data Reports on August 1972 Solar-Terrestrial Events", price (includes Parts 1-3) $4.50.
UAG-29 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1968", price 75 cents.
UAG-30 "Catalogue of Data on Solar-Terrestrial Physics", price $1.75.

UAG-31 "Aurpral Electrojet Magnetic Activity Indices AE (11) for 1969", price 75 cents.
UAG-32 "Synoptic Radio Maps of the Sun at 3.3 mm for the Years 1967-1969", price 35 cents.
UAG-33 "Auroral Electrojet Magnetic Activity Indices AE (10) for 1967", price 75 cents.
UAG-34 "Absorption Data for the IGY/IGC and IQSY", price $2.00.
UAG-35 "Catalogue of Digital Geomagnetic Variation Data at World Data Center A for Solar-Terrestrial Physics", price 20 cents.

UAG-36 "An Atlas of Extreme Ultraviolet Flashes of Solar Flares Observed Via Sudden Frequency Deviations During the ATM-SKYLAB Missions", price 55 cents.
UAG-37 "Auroral Electrojet Magnetic Activity Indices AE (10) for 1966", price 75 cents.
UAG-38 "Master Station List for Solar-Terrestrial Physics Data at WDC-A for Solar-Terrestrial Physics", price $1.60.
UAG-39 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1971", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, February 1975, 144 pages, price $2.05.

UAG-40 "H-Alpha Synoptic Charts of Solar Activity For the Period of Skylab Observations, May, 1973-March, 1974", by Patrick S. McIntosh, NOAA Environmental Research Laboratories, February 1975, 32 pages, price 56 cents.

UAG-41 "H-Alpha Synoptic Charts of Solar Activity During the First Year of Solar Cycle 20, October, 1964 - August, 1965", by Patrick S. McIntosh, NOAA Environmental Research Laboratories, and Jerome T. Nolte, American Science and Engineering, Cambridge, Massachusetts, March 1975, 25 pages, price 48 cents.

UAG-42 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-80 MHz 10 December 1971 through 21 March 1975", by James W. Warwick, George A. Dulk, and Anthony C. Riddle, Department of Astro-Geophysics, University of Colorado, Boulder, Colorado 80302, April 1975, 49 pages, price $1.15.

UAG-43 "Catalog of Observation Times of Ground-Based Skylab-Coordinated Solar Observing Programs", compiled by Helen E. Coffey, World Data Center A for Solar-Terrestrial Physics, May 1975, 159 pages, price $3.00.

UAG-44 "Synoptic Maps of Solar 9.1 cm Microwave Emission from June 1962 to August 1973", by Werner Graf and Ronald N. Bracewell, Radio Astronomy Institute, Stanford University, Stanford, California 94305, May 1975, 183 pages, price $2.55.

UAG-45 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1972", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, May 1975, 144 pages, price $2.10.

UAG-46 "Interplanetary Magnetic Field Data 1963-1974", by Joseph H. King, National Space Science Data Center, NASA Goddard Space Flight Center, Greenbelt, Maryland 20771, June 1975, 382 pages, price $2.95.

UAG-47 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1973", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, June 1975, 144 pages, price $2.10.

UAG-48A "Synoptic Observations of the Solar Corona during Carrington Rotations 1580-1596 (11 October 1971 - 15 January 1973)", [Reissue with quality images] by R. A. Howard, M. J. Koomen, D. J. Michels, R. Tousey, C. R. Detwiler, D. E. Roberts, R. T. Seal and J. D. Whitney, E. O. Hulbert Center for Space Research, NRL, Washington, D. C. 20375 and R. T. and S. F. Hansen, C. J. Garcia and E. Yasukawa, High Altitude Observatory, NCAR, Boulder, Colorado 80303, February 1976, 200 pages, price $4.27.

UAG-49 "Catalog of Standard Geomagnetic Variation Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado, August 1975, 125 pages, price $1.85.

UAG-50 "High-Latitude Supplement to the URSI Handbook on Ionogram Interpretation and Reduction", by W. R. Piggott, British Antarctic Survey, c/o SRC, Appleton Laboratory, Ditton Park, Slough, England, October 1975, 292 pages, price $4.00.

UAG-51 "Synoptic Maps of Solar Coronal Hole Boundaries Derived from He II 304Å Spectroheliograms from the Manned Skylab Missions", by J. D. Bohlin and D. M. Rubenstein, E. O. Hulbert Center for Space Research, Naval Research Laboratory, Washington, D. C. 20375 U.S.A., November 1975, 30 pages, price 54 cents.

UAG-52 "Experimental Comprehensive Solar Flare Indices for Certain Flares, 1970-1974", compiled by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, The University of Michigan, 895 Lake Angelus Road North, Pontiac, Michigan 48055 U.S.A., November 1975, 27 pages, price 60 cents.

UAG-53 "Description and Catalog of Ionospheric F-Region Data, Jicamarca Radar Observatory (November 1966 - April 1969)", by W. L. Clark and T. E. Van Zandt, Aeronomy Laboratory, NOAA, Boulder, Colorado 80302 and J. P. McClure, University of Texas at Dallas, Dallas, Texas 75230, April 1976, 10 pages, price 33 cents.

UAG-54 "Catalog of Ionosphere Vertical Soundings Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado 80302, April 1976, 130 pages, price $2.10.

UAG-55 "Equivalent Ionospheric Current Representations by a New Method, Illustrated for 8-9 November 1969 Magnetic Disturbances", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, H. W. Kroehl, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, M. Kanamitsu, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado 80303, J. H. Allen, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, and S.-I. Akasofu, Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, April 1976, 91 pages, price $1.60.

UAG-56 "Iso-intensity Contours of Ground Magnetic H Perturbations for the December 16-18, 1971 Geomagnetic Storm", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701 (currently Guest worker at Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302), April 1976, 37 pages, price $1.39.

UAG-57 "Manual on Ionospheric Absorption Measurements", edited by K. Rawer, Institut für Physikalische Weltraumforschung, Freiburg, G.F.R., June 1976, 202 pages, price $4.27.

UAG-58 "ATS6 Radio Beacon Electron Content Measurements at Boulder, July 1974 - May 1975", by R. B. Fritz, Space Environment Laboratory (currently with Wave Propagation Laboratory), NOAA, Boulder, Colorado 80302 USA, September 1976, 61 pages, price $1.04.

UAG-59 "Auroral Electrojet Magnetic Activity Indices AE(11) for 1974", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, December 1976, 144 pages, price $2.16.

UAG-60 "Geomagnetic Data for January 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, July 1977, 57 pages, price $1.07.

UAG-61 "Collected Data Reports for STIP Interval II 20 March - 5 May 1976", edited by Helen E. Coffey and John A. McKinnon, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, August 1977, 313 pages, price $2.95.

UAG-62 "Geomagnetic Data For February 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, September 1977, 55 pages, price $1.11.

UAG-63 "Geomagnetic Data for March 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, September 1977, 57 pages, price $1.11.

UAG-64 "Geomagnetic Data for April 1976 (AE(8) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, February 1978, 55 pages, price $1.00.

UAG-65 "The Information Explosion and Its Consequences for Data Acquisition, Documentation, and Processing" by G. K. Hartmann, Max-Planck-Institut für Aeronomie, D-3411 Katlenburg-Lindau 3, GFR, May 1978, 36 pages, price 75 cents.

UAG-66 "Synoptic Radio Maps of the Sun at 3.3mm 1970-1973" by Earle B. Mayfield, Space Science Lab., and Fred I. Shimabukuro Electronics Res. Lab., The Ivan A. Getting Laboratories, The Aerospace Corp., El Segundo, California 90245, May 1978, 30 pages, price 75 cents.

UAG-67 "Ionospheric D-Region Profile Data Base, A Collection of Computer-Accessible Experimental Profiles of the D and Lower E Regions", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, August 1978, 30 pages, price 88 cents.

UAG-68 "A Comparative Study of Methods of Electron Density Profile Analysis", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, September 1978, 56 pages, price $1.41.

UAG-69 "Selected Disturbed D-Region Electron Density Profiles. Their relation to the undisturbed D region", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, October 1978, 50 pages, price $1.29.

UAG-70 "Annotated Atlas of Hα Synoptic Charts for Solar Cycle 20 (1964-1974) Carrington Solar Rotations 1487-1616", by Patrick S. McIntosh, Space Environment Laboratory, ERL/NOAA, February 1979, 327 pages, price $3.50.

UAG-71 "Magnetic Potential Plots Over the Northern Hemisphere for 26-28 March 1976", by A.D. Richmond, SEL/ERL/NOAA, H.W. Kroehl, NGSDC/EDIS/NOAA, M.A. Henning, Lockheed Missiles and Space Co., Aurora, CO, and Y. Kamide, Kyoto Sangyo Univ., Kyoto, Japan, April 1979, 115 pages, price $1.50.

UAG-72 "Energy Release in Solar Flares, Proceedings of the Workshop on Energy Release in Flares, 26 February-1 March 1979, Cambridge, Massachusetts, U.S.A.", edited by David M. Rust, American Science and Engineering, Inc., Cambridge, MA and A. Gordon Emslie, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, July 1979, 68 pages, price $1.50.

UAG-73 "Auroral Electrojet Magnetic Activity Indices AE(11-12) for January-June 1975", by J. H. Allen, C. C. Abston, J. E. Sa J. E. Salazar and J. A. McKinnon, NGSDC/EDIS/NOAA, August 1979, 114 pages, price $1.75.

☆GPO 1979—677-073/5

22

83